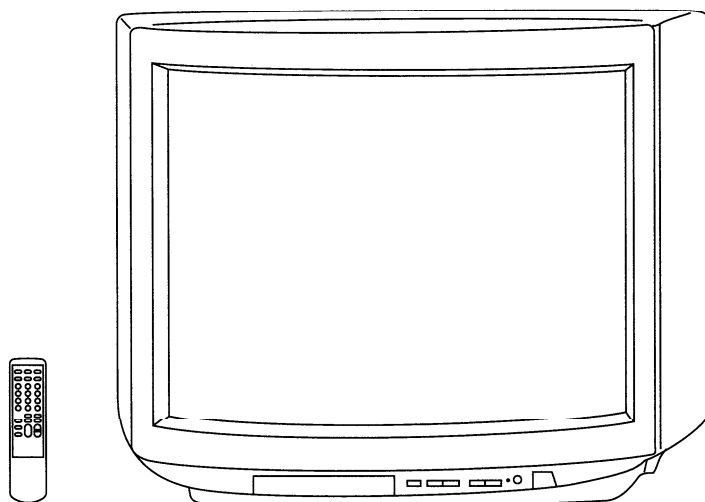


# SERVICE MANUAL

## BG-1L CHASSIS

<u>MODEL</u>	<u>COMMANDER</u>	<u>DEST.</u>	<u>CHASSIS NO.</u>	<u>MODEL</u>	<u>COMMANDER</u>	<u>DEST.</u>	<u>CHASSIS NO.</u>
<i>KV-J29MF1</i>	<i>RM-873</i>	<i>Thailand</i>	<i>SCC-K76D-A</i>				
<i>KV-J29MN2</i>	<i>RM-873</i>	<i>Thailand</i>	<i>SCC-K76B-A</i>				
<i>KV-J29SN21</i>	<i>RM-873</i>	<i>New Zealand</i>	<i>SCC-K89A-A</i>				
<i>KV-J29SZ2</i>	<i>RM-873</i>	<i>Australia</i>	<i>SCC-K86B-A</i>				



TRINITRON® COLOR TV  
**SONY®**

## SPECIFICATIONS

		Note
<b>Power requirements</b>	110-240 V AC, 50/60 Hz	
<b>Power consumption (W)</b>	Indicated on the rear of TV	
<b>Television system</b>	B/G, I, D/K, M	KV-J29MF1/J29MN2
	B/G	KV-J29SN21/J29SZ2
<b>Color system</b>	PAL, PAL 60, SECAM, NTSC4.43, NTSC3.58	KV-J29MF1/J29MN2
	PAL, PAL 60, NTSC4.43, NTSC3.58 (AV IN)	KV-J29SN21/J29SZ2
<b>Stereo system</b>	NICAM Stereo B/G, I; A2 Stereo (German) B/G	KV-J29MN2/J29SN21
	A2 Stereo (German) B/G	KV-J29SZ2
<b>Teletext language</b>	English, German, Swedish, Italian, French, Spanish	KV-J29SN21 only
<b>Channel coverage</b>		
<b>B/G</b>	VHF: E2 to E12 / UHF: E21 to E69 / CATV: S01 to S03, S1 to S41	
<b>I</b>	UHF: B21 to B68 / CATV: S01 to S03, S1 to S41	KV-J29MF1/J29MN2 only
<b>D/K</b>	VHF: C1 to C12, R1 to R12 / UHF: C13 to C57, R21 to R60 CATV: Z1 to Z39, S01 to S03, S1 to S41	KV-J29MF1/J29MN2 only
<b>M</b>	VHF: A2 to A13 / UHF: A14 to A79 / CATV: A-8 to A-2, A to W+4, W+6 to W+84	KV-J29MF1/J29MN2 only
<b>Antenna</b>	75-ohm external antenna terminal for VHF/UHF	
<b>Audio output (speaker)</b>	5W × 2 + 15W (3D WOOFER)	KV-J29MN2/J29SN21/J29SZ2
	6W × 6W	KV-J29MF1
<b>Number of terminal</b>		
<b>Video</b>	Input: 3 Output: 1	Phono jacks; 1 Vp-p, 75 ohms
<b>Audio</b>	Input: 3 Output: 1	Phono jacks; 500 mVrms
<b>S-Video</b>	Input: 1	Y : 1 Vp-p, 75 ohms, unbalanced, sync negative C : 0.286 Vp-p, 75 ohms
<b>Headphone</b>	Output: 1	Minijack
<b>3D WOOFER</b>	Output: 1	KV-J29MN2/J29SN21/J29SZ2
<b>Picture tube</b>	29 inch (Super Trinitron Plus)	
<b>Tube size (cm)</b>	72	Measured diagonally
<b>Screen size (cm)</b>	68	Measured diagonally
<b>Dimension (w/h/d, mm)</b>	780 × 601 × 542	KV-J29MN2/J29SN21/J29SZ2
	780 × 577 × 542	KV-J29MF1
<b>Mass (kg)</b>	46	KV-J29MN2/J29SN21/J29SZ2
	43	KV-J29MF1
<b>Accessories</b>		
<b>Supplied</b>	Remote commander (1) Size R6 (AA) battery (2)	
<b>Optional</b>	TV stand (SU-E29G)	
	TELETEXT ADAPTOR OPK-T300G	KV-J29SZ2 only

Design and specifications are subject to change without notice.

### CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK  $\Delta$  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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## SECTION 1 GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instructions Manual. The page numbers of the Operating Instruction Manual remain as in this manual.

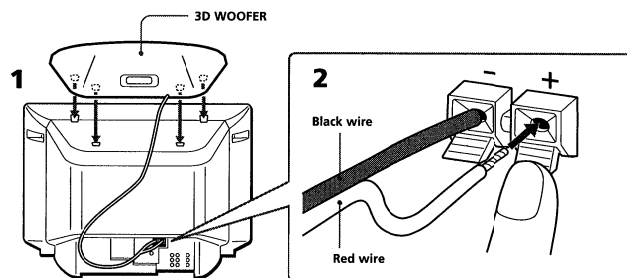
### Getting Started

## Connections

### Connecting the 3D WOOFER

■ Except for KV-J29MF1

- 1 Attach the 3D WOOFER into the footholds on the top of the TV.
- 2 Connect the wires to the 3D WOOFER (8Ω) terminals at the rear of the TV.  
The red wire should be connected to the ⊕ red terminal and the black wire to the ⊖ black terminal.

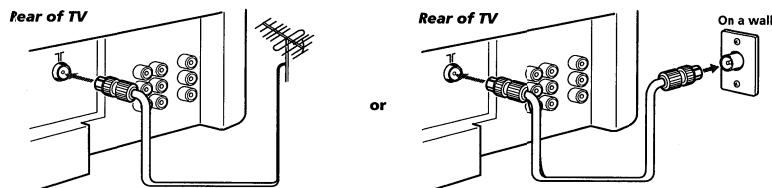


#### Notes

- Connect only the supplied 3D WOOFER; otherwise the TV may malfunction.
- Unplug the TV from the wall outlet when connecting the 3D WOOFER.
- Make sure that none of the 3D WOOFER wire strands stick out, making contact with the neighbouring speaker terminal, to prevent a malfunction caused by a short circuit of the terminals.

### Connecting a VHF antenna or a combination VHF/UHF antenna — 75-ohm coaxial cable (round)

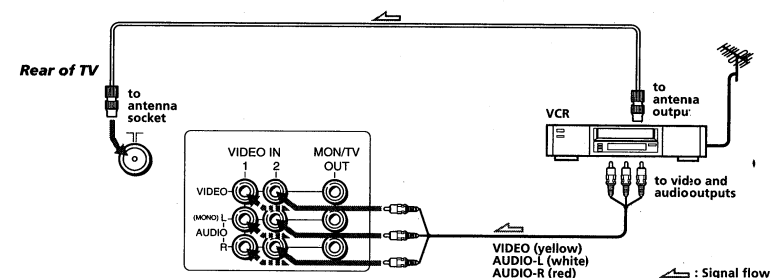
Attach an optional IEC antenna connector to the 75-ohm coaxial cable.  
Plug the connector into the ㄗ (antenna) socket at the rear of the TV.



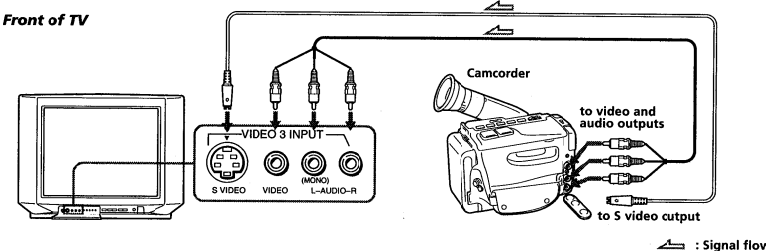
### Connecting optional equipment

You can connect optional audio/video equipment to your TV such as a VCR, multi disc player, camcorder, video game, or stereo system.

#### Connecting video equipment using video input jacks



#### Front of TV



#### When connecting a monaural VCR

Connect the yellow plug to VIDEO and the black plug to AUDIO-L (MONO).

#### When connecting a VCR to the ㄗ (antenna) terminal

Preset the signal output from the VCR to the program position 0.

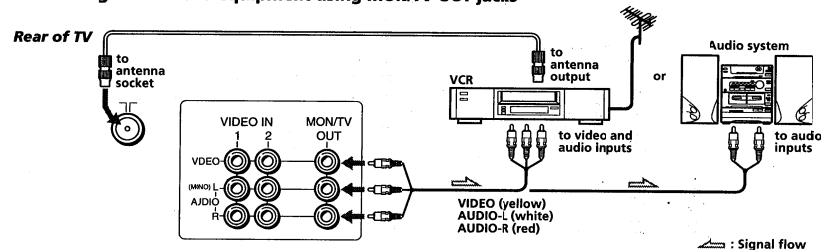
#### If both S Video and video signals are input simultaneously

The S Video input signal is selected. To view a video input signal, disconnect the S Video connection.

#### Note on the video input

When no signal is input, the screen becomes blue.

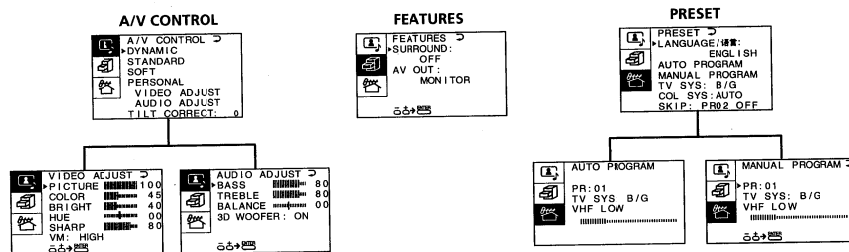
#### Connecting audio/video equipment using MON/TV OUT jacks





## Introducing the menus

You can preset TV channels, adjust the picture and sound qualities, and select some settings using the on-screen menus. You can use the buttons on both the remote commander and the TV to operate the menus.



### Getting back to the previous menu (except for AUTO PROGRAM)

Press + or - to move the cursor (►) to the first line (□) of each menu, and press ENTER.

### Cancelling the menu screen

Press MENU.

#### Notes (except for AUTO PROGRAM)

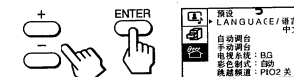
- When a menu is selected after pressing ENTER, the color of both the menu and the menu symbol change and the cursor (►) appears beside the first item of the menu.
- When an item on the menu is selected after pressing ENTER, the color of the item changes.
- You can refer to the guide (◀▶) at the bottom of the menus (except for the A/V CONTROL and PRESET menus) for the basic operations of the menu.
- If more than approximately 60 seconds elapse after you press a button, the menu screen disappears automatically.

## Changing the menu language

If you prefer Chinese to English, you can change the menu language. You can use buttons on the remote commander or the TV.

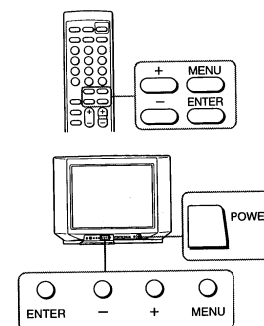
**4** Make sure the cursor (►) appears beside LANGUAGE/语言, and press ENTER.

**5** Press + or - to select 中文, and press ENTER.

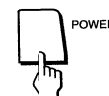


All of the menus change to Chinese.

**6** Press MENU to return to the normal screen.



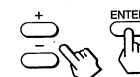
**1** Press POWER to turn on the TV.



**2** Press MENU.



**3** Press + or - to move the cursor (►) to the PRESET menu (PRESET), and press ENTER.

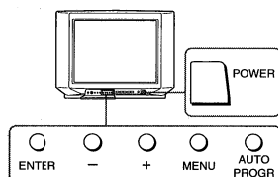


## Presetting channels

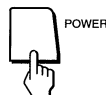
You can preset TV channels easily by storing all the receivable channels automatically. You can also preset channels manually or disable program positions (see page 11).

### Presetting channels automatically

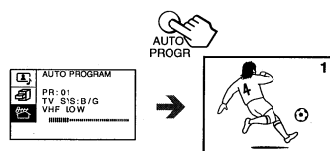
You can preset up to 100 TV channels in numerical sequence from the program position 1. You can preset channels automatically using the button on the TV or the menu.



#### 1 Press PCWER to turn on the TV.



#### 2 Press AUTO PROGR.



The TV starts scanning and presetting channels automatically. When all of the receivable channels are stored, the first preset TV program appears on the screen.

### To preset channels automatically using the menu

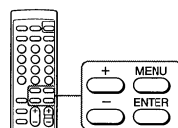
#### 1 Press MENU.

#### 2 Press + or - to move the cursor (►) to the PRESET menu (PRE), and press ENTER.

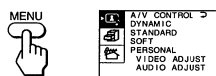
#### 3 Press + or - to move the cursor (►) to AUTO PROGRAM, and press ENTER.

### Presetting channels manually

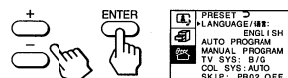
To change the program position for a channel or to receive a channel with a weak signal which you cannot receive by automatic presetting, preset the channel manually.



#### 1 Press MENU.



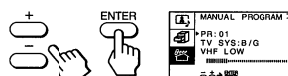
#### 2 Press + or - to move the cursor (►) to the PRESET menu (PRE), and press ENTER.



#### 3 Select your local TV system.

- (1) Press + or - to move the cursor (►) to TV SYS, and press ENTER.
- (2) Press + or - until your local TV system appears on the menu, and press ENTER.

#### 4 Press + or - to move the cursor (►) to MANUAL PROGRAM, and press ENTER.



#### 5 Select the program position to which you want to preset a channel.

- (1) Make sure the cursor (►) appears beside PR, and press ENTER.
- (2) Press + or - until the program position you want appears on the menu, and press ENTER.

#### 6 Select the desired channel.

- (1) Press + or - to move the cursor (►) to VHF LOW, and press ENTER.
- (2) Press + or - until the desired channel picture appears on the TV screen, and press ENTER.

#### 7 Press MENU to return to the normal screen.

#### If the TV system is not properly selected

The picture color may be poor and/or the sound may be noisy. In this case, select the appropriate TV system.

- 1 Press PROGR +/- or the number buttons to select the program position.
- 2 Display the PRESET menu.
- 3 Press + or - to move the cursor (►) to TV SYS, and press ENTER.
- 4 Press + or - until the appropriate TV system appears, and press ENTER.

#### Notes

- The TV system setting is memorized for each program position.
- If you do not know your local TV system, consult your nearest Sony dealer or authorized service center.

### Disabling program positions

By disabling unused or unwanted program positions, you can skip those positions when you press PROGR +/-.

#### 1 Press MENU.

#### 2 Press + or - to move the cursor (►) to the PRESET menu (PRE), and press ENTER.

#### 3 Press + or - to move the cursor (►) to SKIP, and press ENTER.

#### 4 Press + or - until the unused or unwanted program position appears on the menu, and press ENTER.

#### 5 Press + or - to select ON, and press ENTER.

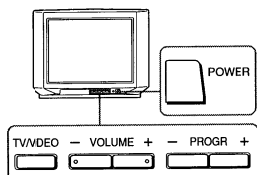
#### 6 To disable other program positions, repeat steps 4 and 5.

#### 7 Press MENU to return to the normal screen.

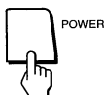
#### To cancel the skip setting

- 1 Display the PRESET menu.
- 2 Press + or - to move the cursor (►) to SKIP, and press ENTER.
- 3 Press + or - until the program position you want to cancel the skip setting appears, and press ENTER.
- 4 Press + or - to select OFF, and press ENTER.

## Watching the TV



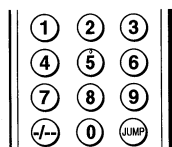
- 1 Press **POWER** to turn on the TV.



When the TV is turned on in the standby mode after pressing **POWER** on the TV, press **POWER** on the remote commander.

- 2 Select the TV program you want to watch.

**To select a program position directly**  
Press the number button.

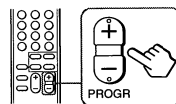


To select a two-digit program position, press "1-" before the number buttons.  
For example: to select program position 25, press "1-" then "2" and "5."

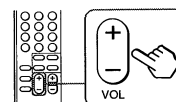


### To scan through program positions

Press **PROGR +/-** on the remote commander or the TV until the program position you want appears.



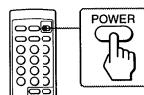
- 3 Press **VOL +/-** on the remote commander or **VOLUME +/-** on the TV to adjust the volume.



### Turning off the TV

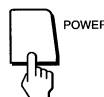
#### To turn off the TV temporarily

Press **POWER** on the remote commander. The standby indicator lights up.



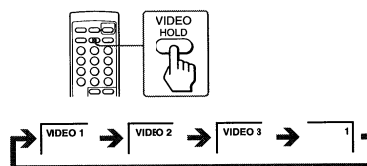
#### To turn off the TV completely

Press **POWER** on the TV.



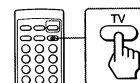
### Watching the video input

Press **VIDEO/HOLD** on the remote commander or **TV/VIDEO** on the TV.



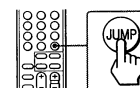
### To watch TV

Press **TV** on the remote commander or **TV/VIDEO** on the TV.



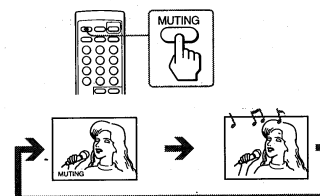
### Switching back quickly to the previous channel

Press **JUMP**.



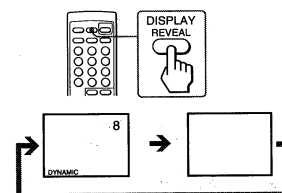
### Muting the sound

Press **MUTING**.



### Displaying the on-screen information

Press **DISPLAY/REVEAL**.



#### Note

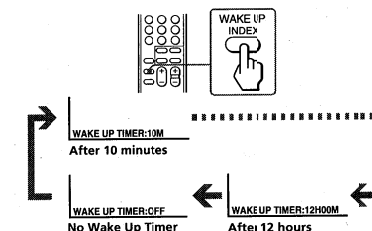
- The on-screen display shows the program position or the video mode and the picture and sound information. The on-screen display for the picture and sound information disappear after being displayed for approximately three seconds.

### Setting the Wake Up Timer

You can set the TV to turn on automatically after the period of time you want.

- 1 Press **WAKE UP/INDEX** repeatedly to set the timer.

The on-screen display appears



- 2 If you want a particular TV program or video mode to be displayed using the Wake Up Timer, select the TV program or video mode.

- 3 Press **POWER** on the remote commander or set the Sleep Timer to turn off the TV in the standby mode.

The **WAKE UP** indicator lights up in amber color.

To cancel the Wake Up Timer, press **WAKE UP/INDEX** repeatedly until "WAKE UP TIMER: OFF" appears, or turn off the main power of the TV.

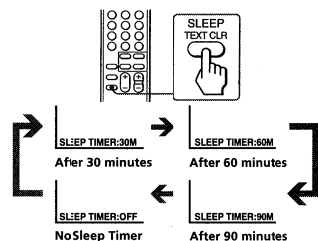
#### Notes

- The Wake Up Timer starts immediately after the on-screen display disappears.
- The last TV program position or video mode just before the TV turns into the standby mode will appear when the TV is turned on using the Wake Up Timer.
- If no buttons or controls are pressed for more than two hours after the TV is turned on using the Wake Up Timer, the TV automatically turns into the standby mode. If you want to continue watching the TV, press any button or control on the TV or remote commander.

## Setting the Sleep Timer

You can set the TV to turn off automatically after the period of time you want.

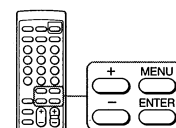
Press **SLEEP**.



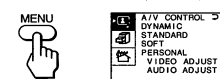
To cancel the Sleep Timer, press SLEEP repeatedly until "SLEEP TIMER: OFF" appears, or turn the TV off.

## Adjusting the picture and sound

### Selecting the picture and sound modes

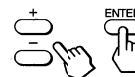


1 Press **MENU**.



2 Make sure the cursor (▶) appears in the **A/V CONTROL** menu (Ⓐ), and press **ENTER**.

3 Press **+** or **-** to move the cursor (▶) to **DYNAMIC**, **STANDARD**, **SOFT**, or **PERSONAL**, and press **ENTER**.



Select	To
DYNAMIC	Receive high contrast picture with powerful sound.
STANDARD	Receive normal contrast picture with medium listening sound.
SOFT	Receive mild picture with soft sound.
PERSONAL	Receive the last picture and sound settings that are adjusted using VIDEO ADJUST and AUDIO ADJUST.

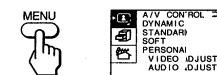
4 Press **MENU** to return to the normal screen.



## Adjusting the picture settings (VIDEO ADJUST)

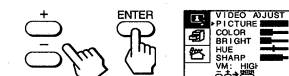
You can adjust the picture settings to suit your taste with the VIDEO ADJUST option. The adjusted settings are stored in the PERSONAL option.

1 Press **MENU**.



2 Make sure the cursor (▶) appears in the **A/V CONTROL** menu (Ⓐ), and press **ENTER**.

3 Press **+** or **-** to move the cursor (▶) to **VIDEO ADJUST**, and press **ENTER**.



4 Press **+** or **-** to move the cursor (▶) to the item you want to adjust, and press **ENTER**.

5 Press **+** or **-** to adjust the selected item, and press **ENTER**.

For details on each item, see "Description of adjustable items" below.

6 To adjust other items, repeat steps 4 and 5.

7 Press **MENU** to return to the normal screen.

### Description of adjustable items

Item	Press -	Press +
PICTURE	Decrease picture contrast.	Increase picture contrast.
COLOR	Decrease color intensity.	Increase color intensity.
BRIGHT	Darken the picture.	Brighten the picture.
HUE	Make picture tones become reddish.	Make picture tones become greenish.
SHARP	Soften the picture.	Sharpen the picture.
VM	Decrease emphasis on picture edges.	Increase emphasis on picture edges.

### Note

- You can adjust HUE for the NTSC color system only.

### If the picture is slightly snowy

You may try to improve the picture by changing the VM setting as described below:

- 1 Display the VIDEO ADJUST menu.
- 2 Press + or - to move the cursor (►) to VM, and press ENTER.
- 3 Press + or - to select LOW, and press ENTER.

### If the picture color is abnormal when receiving programs through the T (antenna) terminal

Change the color system or the TV system from the PRESET menus described below until the color becomes normal.

- 1 Display the PRESET menu.
- 2 Press + or - to move the cursor (►) to COL SYS or TV SYS, and press ENTER.
- 3 Press + or - to change the color system or the TV system until the color becomes normal, and press ENTER.

#### Note

- Normally set the color system (COL SYS) to AUTO.

## Adjusting the sound settings (AUDIO ADJUST)

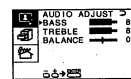
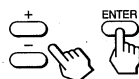
You can adjust the sound settings to suit your taste with the AUDIO ADJUST option. The adjusted settings are stored in the PERSONAL option.

### 1 Press MENU.



### 2 Make sure the cursor (►) appears in the A/V CONTROL menu (A), and press ENTER.

### 3 Press + or - to move the cursor (►) to AUDIO ADJUST, and press ENTER.



### 4 Press + or - to move the cursor (►) to the item you want to adjust, and press ENTER.

### 5 Press + or - to adjust the selected item, and press ENTER.

For details on each item see "Description of adjustable items" below.

### 6 To adjust other items, repeat steps 4 and 5.

### 7 Press MENU to return to the normal screen.

#### Description of adjustable items

Item	Press -	Press +
BASS	Decrease the bass sound.	Increase the bass sound.
TREBLE	Decrease the treble sound.	Increase the treble sound.
BALANCE	Increase the left speaker's volume	Increase the right speaker's volume.

### If the sound is distorted or noisy when receiving programs through the T (antenna) terminal

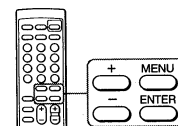
Change the TV system from the PRESET menu as described below until the sound becomes normal.

- 1 Display the PRESET menu.
- 2 Press + or - to move the cursor (►) to TV SYS, and press ENTER.
- 3 Press + or - to change the TV system until the sound becomes normal, and press ENTER.

## Listening to the woofer sound (3D WOOFER)

#### ■ Except for KV-J29MF1

The 3D WOOFER enhances bold, dynamic and clear sounds that spread over a large area and lets you enjoy the thrills, horrors, and suspense of movies or music. The initial setting of the 3D WOOFER is ON, and it is ready for your listening when you turn on the TV.



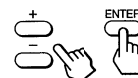
### To turn off the woofer sound

#### 1 Press MENU.



#### 2 Make sure the cursor (►) appears in the A/V CONTROL menu (A), and press ENTER.

#### 3 Press + or - to move the cursor (►) to AUDIO ADJUST, and press ENTER.



#### 4 Press + or - to move the cursor (►) to 3D WOOFER, and press ENTER.

#### 5 Press + or - to select OFF, and press ENTER.

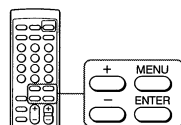
#### 6 Press MENU to return to the normal screen.

#### Notes

- To listen to the woofer sound, make sure that the 3D WOOFER is properly connected to the TV (see page 6).
- You can also disconnect the 3D WOOFER from the TV to turn off the woofer sound.

## Listening to the surround sound (SURROUND)

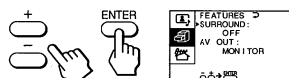
The SURROUND feature enables you to enjoy a surround sound effect that is like being in a large hall or live concert when receiving stereo signals.



1 Press MENU.

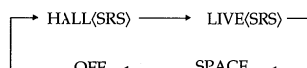


2 Press + or - to move the cursor (▶) to the FEATURES menu (FEATURES), and press ENTER.



3 Make sure the cursor (▶) appears beside SURROUND, and press ENTER.

4 Press + or - to select HALL(SRS), LIVE(SRS), or SPACE and press ENTER.



For details on each item, see "Description of adjustable items" below.

5 Press MENU to return to the normal screen.

### Description of adjustable items

Select	To
HALL(SRS)	Listen to a sound that spreads out over a large area.
LIVE(SRS)	Listen to the sound that gives the feeling of being at a live concert.
SPACE	Listen to a monaural sound that gives a stereo-like effect.
OFF	Turn off the surround sound.

#### Note

- The (●) @ SRS (SOUND RETRIEVAL SYSTEM) is manufactured by Sony Corporation under license from SRS Labs, Inc. It is covered by U.S. Patent No. 4,748,669. The word "SRS" and the SRS symbol (●) are registered trademarks of SRS Labs, Inc.

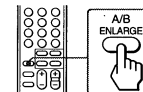
## Selecting a stereo or bilingual program

### ■ Except for KV-J29MF1

You can enjoy stereo sound or bilingual programs of both NICAM and A2 (German) stereo systems (for KV-J29MN2/J29SN21) and A2 (German) stereo system (for KV-J29SSZ2).

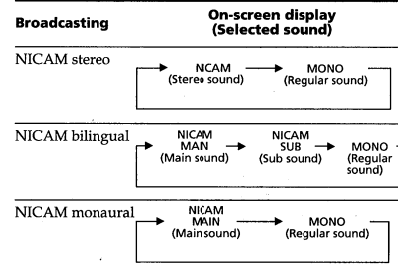
Press A/B/ENLARGE repeatedly until you receive the sound you want.

The on-screen display changes corresponding to the selected sound, and the STANDBY/STEREO/WAKE UP indicator also lights up.

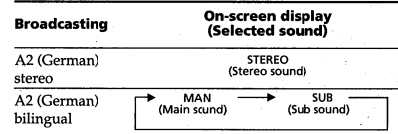


### ■ KV-J29MN2/J29SN21

#### When receiving a NICAM program



#### When receiving an A2 (German) program



### Receiving area for NICAM and A2 (German) programs

System	Receiving area
NICAM	Hong Kong, Singapore, New Zealand, etc.
A2 (German)	Australia, Malaysia, Thailand, etc.

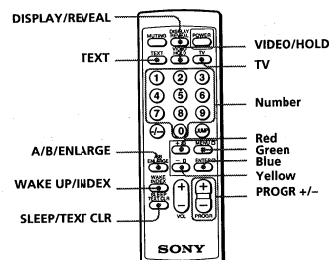
#### Notes

- If the signal is very weak, the sound becomes monaural automatically.
- KV-J29MN2/J29SN21 only*
- If the stereo sound is noisy when receiving a NICAM program, select "MONO." The sound becomes monaural, however, the noise will be reduced.

## Viewing Teletext

### ■ KV-J29SN21 only

TV stations broadcast an information service called Teletext via a TV channel. Teletext service allows you to receive various information such as market shares, weather forecasts or news at any time. For the KV-J29SZ2 model, you need the Teletext adaptor OPK-T300G (not supplied) to view the Teletext broadcast. You can request your nearest authorized service center or dealer to install the Teletext adaptor into your TV.



### Displaying Teletext

**1 Select a TV channel that carries the Teletext broadcast you want to watch.**

**2 Press TEXT to display the Teletext.**

A Teletext page (normally the index page) is displayed. If there is no Teletext broadcast, "100" is displayed at the top left corner of the screen.

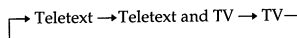
#### To turn off Teletext

Press TV.

### Superimposing a Teletext page on the TV picture

#### Press TEXT.

Each time you press TEXT, the screen changes as follows:



### Checking the contents of a Teletext service (INDEX)

**Press WAKE UP/INDEX to display an overview of the Teletext contents and page numbers.**

#### Using FASTEXT

This feature allows you to quickly access a Teletext page that uses FASTEXT. When a FASTEXT program is broadcasted, the colored menus appear at the bottom of the screen. The colors of the menus correspond to the red (+), green (MENU), yellow (-), and blue (ENTER) color-coded buttons on the remote commander.

#### To access a FASTEXT menu

Press the color-coded button on the remote commander that corresponds to the colored menu which appears at the bottom of the screen.

The menu page appears on the screen after several seconds.

### Selecting a Teletext page

**Press the number buttons to enter the three-digit page number of the Teletext page you want.**

If you make a mistake, re-enter the correct page number.

#### To access the next or previous page

Press PROGR +/-.

You can also access a Teletext page of any page numbers that appear in the colored column at the bottom of the screen using the corresponding color-coded button on the remote commander.

### Holding a Teletext page (HOLD)

A Teletext page may consist of several subpages. You can stop the page scrolling in order to read the text at your own pace.

#### Press VIDEO/HOLD.

The HOLD symbol "⏸" appears at the top left corner of the screen.

#### To resume normal Teletext operation

Press VIDEO/HOLD again or TEXT.

### Revealing concealed information (REVEAL)

The REVEAL option lets you disclose concealed information, such as an answer to a quiz that you find on some of the Teletext pages.

#### Press DISPLAY/REVEAL.

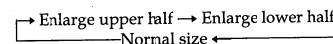
#### To conceal the information

Press DISPLAY/REVEAL again.

### Enlarging the Teletext display (ENLARGE)

#### Press A/B/ENLARGE.

Each time you press A/B/ENLARGE, the Teletext display changes as follows:



### Waiting for a Teletext page while watching a TV program (TEXT CLEAR)

**1 Key in the page number of the Teletext that you want to watch, then press SLEEP/TEXT CLR.**

**2 When the page number is displayed on the screen, press TEXT to turn on the Teletext.**

## Customizing the TV

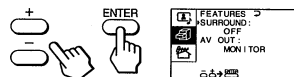
### Using the AV OUT (advanced rec-out) terminal

You can select the output signal from the MON/TV OUT jacks at the rear of the TV. However, the signal of the Teletext broadcast cannot be output even though MONITOR is selected (for KV-J29SN21 only).

#### 1 Press MENU.



#### 2 Press + or - to move the cursor (P) to the FEATURES menu (F), and press ENTER.



#### 3 Press + or - to move the cursor (P) to AV OUT, and press ENTER.

#### 4 Press + or - to select the output signal, and press ENTER.

Select	To
TV	Output the signal of the TV broadcast.
MONITOR	Output the signal of the picture you are watching as a main picture.

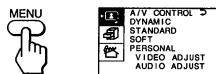
#### Note

- Do not change the channel while recording with a VCR through the MON/TV OUT jacks. If you change the channel, it also changes the channel you are recording.

### Adjusting the picture tilt

You can adjust the picture tilt if it is not aligned to the TV screen. This may happen due to the direction of the earth's magnetic fields in relation to the TV position.

#### 1 Press MENU.



#### 2 Make sure the cursor (P) appears in the A/V CONTROL menu (A), and press ENTER.

#### 3 Press + or - to move the cursor (P) to TILT CORRECT, and press ENTER.

#### 4 Press + or - to select the most suitable value to adjust the picture tilt, and press ENTER.

TILT CORRECT:  
-5 ← -4 ← -3 ← -2 ← -1 ← 0 → +1 → +2 → +3 → +4 → +5  
Press - Press +

## Additional Information

## Troubleshooting

If you have any problems, read this manual again and check the countermeasure for each of the symptoms listed below.

If the problem persists after trying the methods below, contact your nearest Sony dealer or authorized service center.

### Snowy picture Noisy sound



- Check the antenna.
- Check the antenna connection on the TV and on the wall.
- Check the TV system (TV SYS) setting.

### Dotted lines or stripes



- This may be caused by local interference (e.g. cars, neon signs, hair dryers, etc.). Adjust the antenna for minimum interference.

### Double images or "ghosts"



- This may be caused by reflections from nearby mountains or buildings. A highly directional antenna may improve the picture.

### Good picture Noisy sound



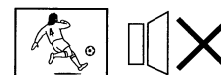
- Check the TV system (TV SYS) setting.

### No picture No sound



- Press POWER.
- Press POWER to turn off the TV for about five seconds and then turn it on again.
- Check the power cord connection.
- Check the antenna connection.
- Check the VCR connections.

### Good picture No sound



- Press VOL +.
- Press MUTING.
- Press A/B/ENLARGE.

### No color



- Adjust the COLOR level in the VIDEO ADJUST menu of the PERSONAL option.
- Check the color system (COL SYS) setting.

### No sound from 3D WOOFER (except for KV-J29MF1)



- Check the connection of the 3D WOOFER.
- Check that the setting of the 3D WOOFER is ON in the AUDIO ADJUST menu.

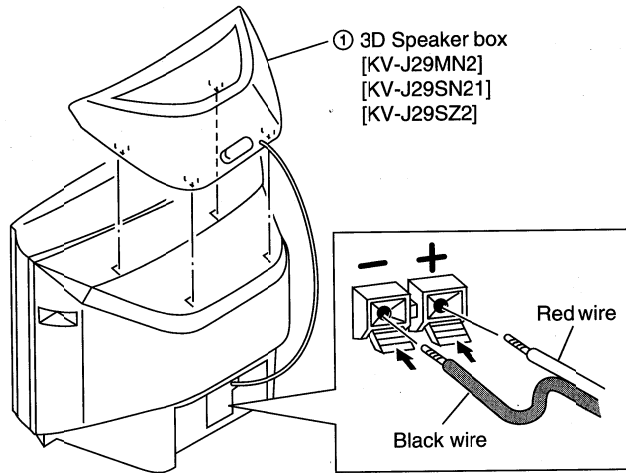
### TV cabinet creaks

- Even if the picture or the sound is normal, changes in the room temperature sometimes make the TV cabinet expand or contract, making a noise. This does not indicate a malfunction.

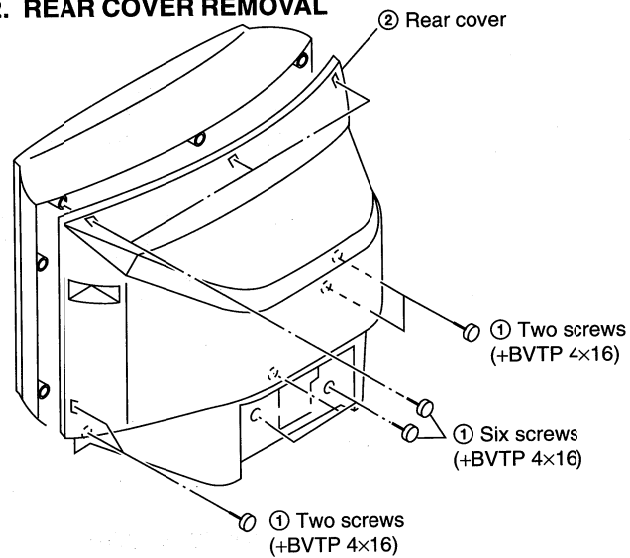


## SECTION 2 DISASSEMBLY

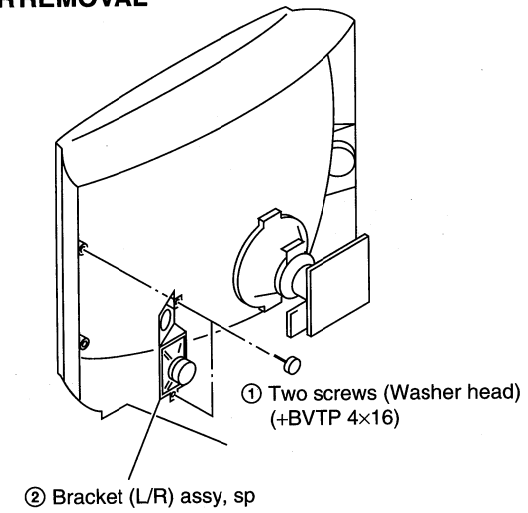
### 2-1. 3D SPEAKER BOX REMOVAL



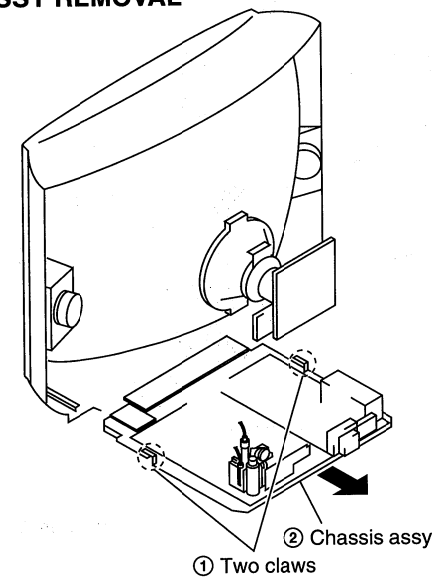
### 2-2. REAR COVER REMOVAL



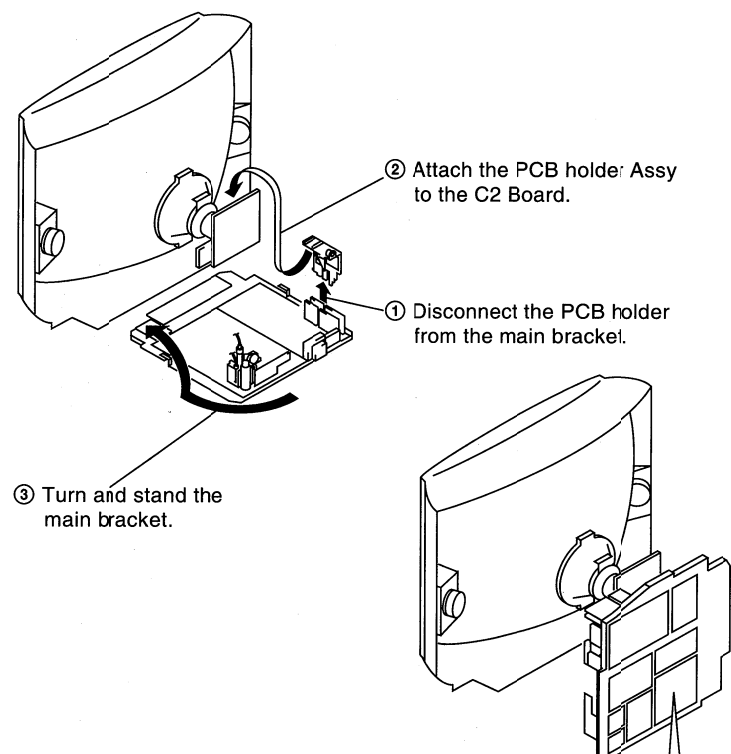
### 2-3. SPEAKER REMOVAL



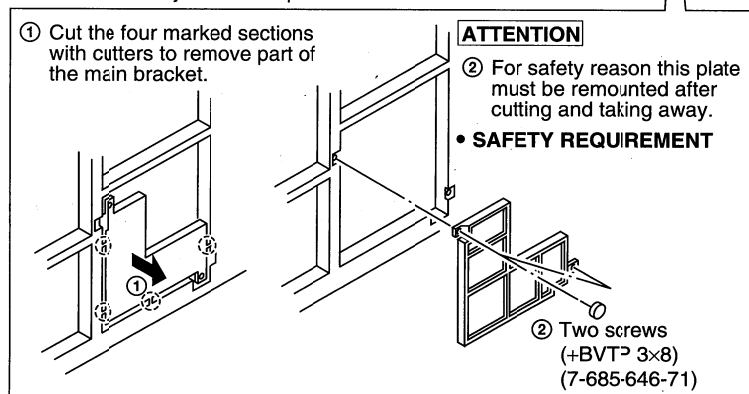
### 2-4. CHASSIS ASSY REMOVAL



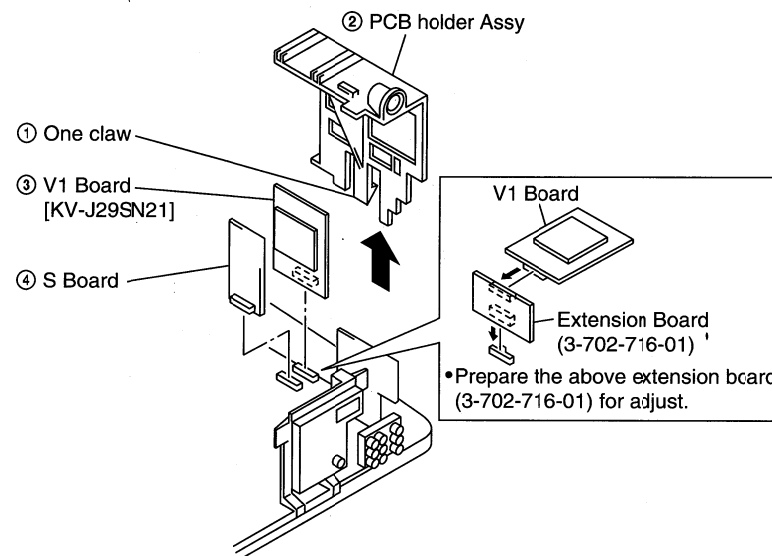
## 2-5. SERVICE POSITION



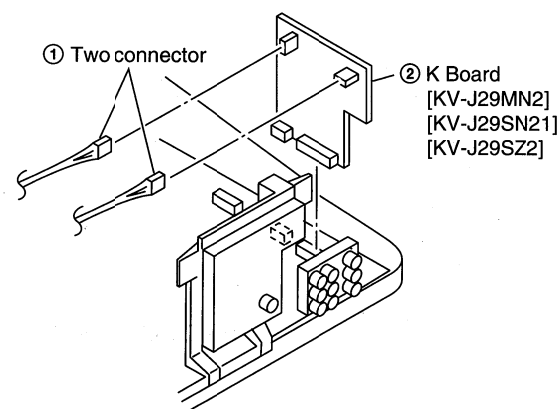
• When measuring the power supply voltage, just remove part of the main bracket as shown below.



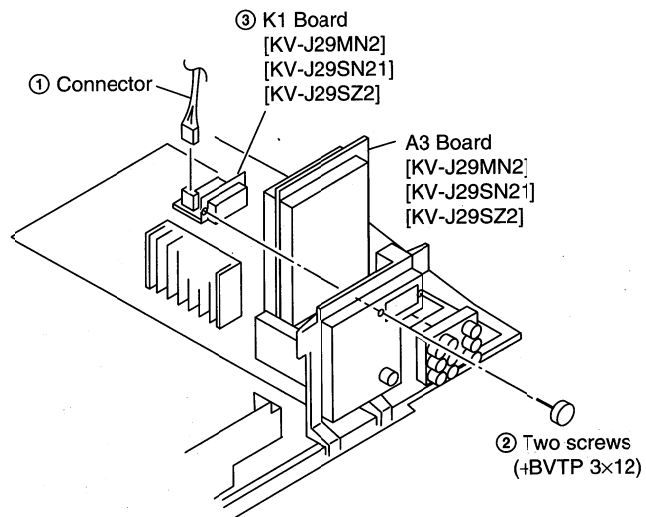
## 2-6. V1 BOARD REMOVAL



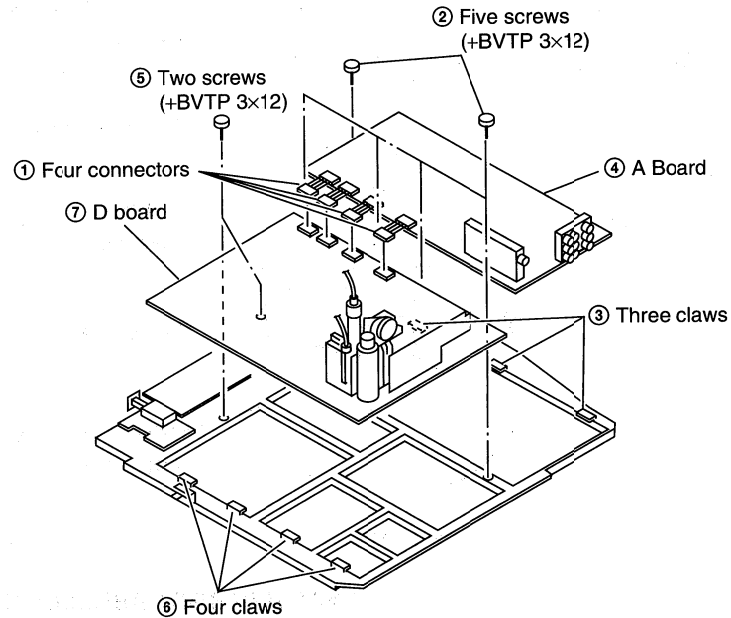
## 2-7. K BOARD REMOVAL



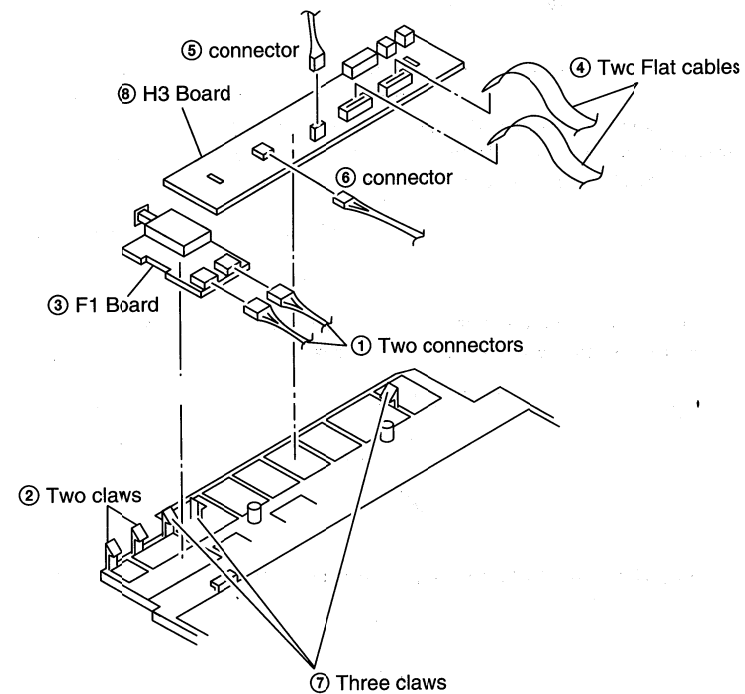
## 2-8. K1 BOARD REMOVAL



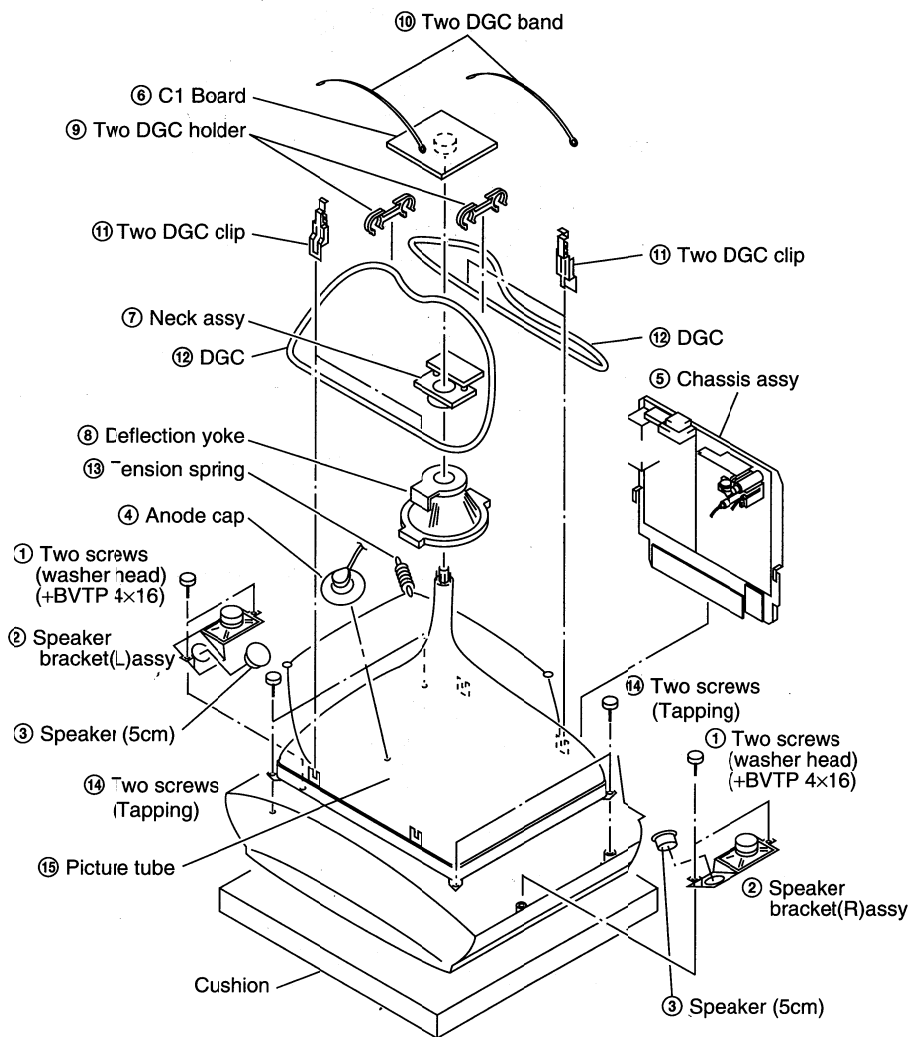
## 2-9. A AND D BOARDS REMOVAL



## 2-10. F1 AND H3 BOARDS REMOVAL



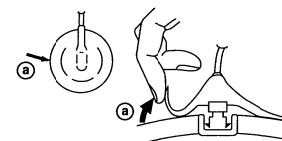
## 2-11. PICTURE TUBE REMOVAL



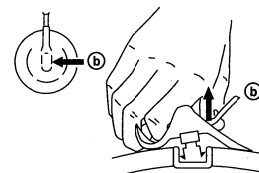
## • REMOVAL OF ANODE-CAP

NOTE : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT, after removing the anode.

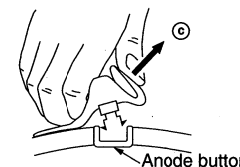
## • REMOVING PROCEDURES



- ① Turn up one side of the rubber cap in the direction indicated by the arrow (a).



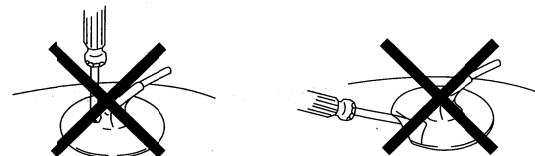
- ② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow (b).



- ③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow (c).

## • HOW TO HANDLE AN ANODE-CAP

- ① Do not damage the surface of anode-caps with sharp shaped objects.
- ② Do not press the rubber too hard so as not to damage the inside of anode-cap. A metal fitting called the shatter-hook terminal is built into the rubber.
- ③ Do not turn the foot of rubber over too hard. The shatter-hook terminal will stick out or damage the rubber.



## SECTION 3

### SELF DIAGNOSIS FUNCTION

KV-J29MF1/J29MN2  
KV-J29SN21/J29SZ2  
RM-873

When turning on the TV, a self diagnosis function is executed.

If no acknowledgement is returned from a device which is turned "ON", the device has a problem.

In this case, one of the LED's responding to the problem device will flicker a defined number of times.

The flickering frequency responding to each failed device is shown below.

<b>Board name</b>	A Board	A Board	A Board	A Board
<b>Ref. No.</b>	IC003	IC1201	IC104	IC206
<b>Device</b>	NONVOLATILE MEMORY	AV SWITCH (CXA1855S)	MAIN Y/C (CXA-2050S)	SURROUND PROCESSOR (TDA8424)
<b>Flickering Frequency</b>	1	2	3	6

All the devices are checked one after another from the left of the table.

If an error is found, the responding LED will start flickering.

So, if more than 1 device has failed, only the one on the left side will flicker.

## SECTION 4

### SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switches should be set as follows unless otherwise noted:

PICTURE control ..... normal  
BRIGHTNESS control ..... normal

Perform the adjustments in the following order :

1. Beam Landing
2. Convergence
3. Focus
4. White Balance

**Note :** Test Equipment Required.

1. Color-bar/Pattern Generator
2. Degausser
3. Oscilloscope

#### Preparation :

- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

#### 4-1. BEAM LANDING

1. Position neck ass'y as shown in Fig4-1.
2. Input a white signal with the pattern generator.  
Contrast } normal  
Brightness }
3. Set the pattern generator raster signal to a green raster.
4. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side.  
(See Figures 4-2 through 4-4.)
5. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 4-2.)
6. Switch the raster signal to blue, then to red and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws and DY spacers.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.  
(See Figure 4-5.)

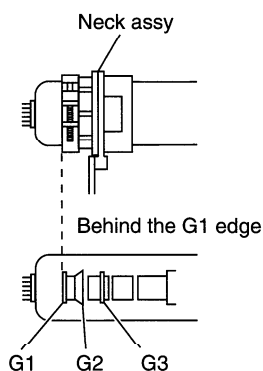


Fig. 4-1

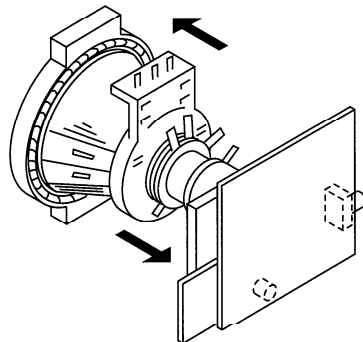


Fig. 4-2

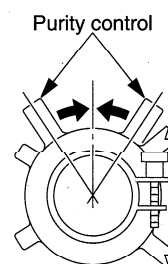


Fig. 4-3

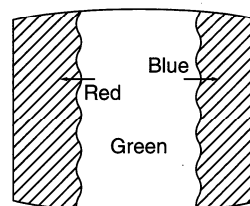


Fig. 4-4

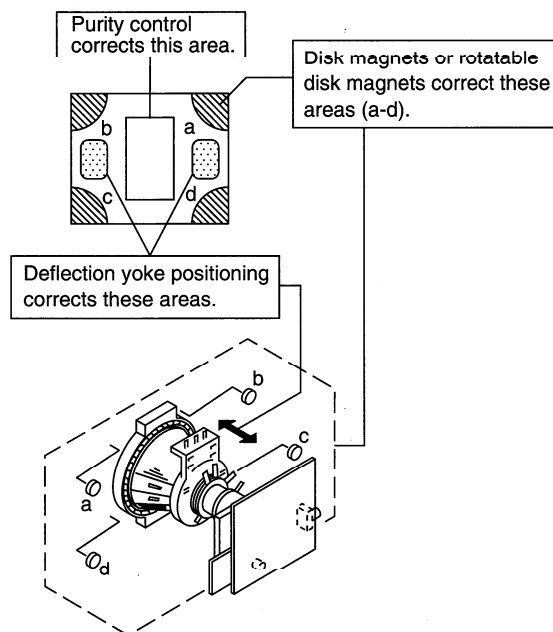


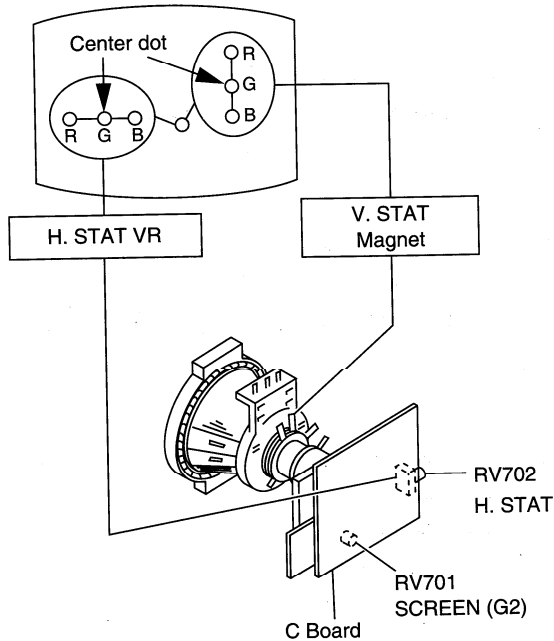
Fig. 4-5

## 4-2. CONVERGENCE

### Preparation :

- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

### (1) Horizontal and Vertical Static Convergence

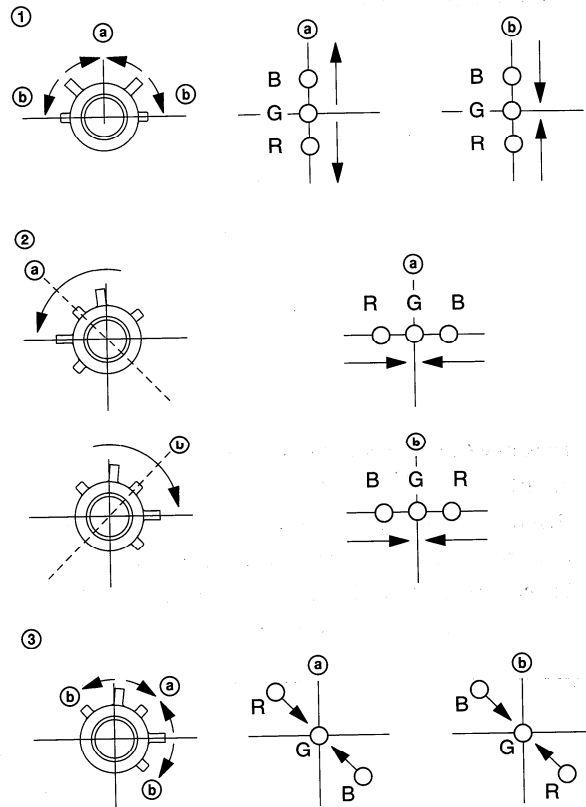


1. (Moving horizontally), adjust the H.STAT control so that the red, green and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green and blue points are on top of each other at the center of the screen.
3. If the red, green and blue points cannot come together at the center of the screen, adjust the convergence with the H.STAT variable resistor and the V.STAT magnet in the manner given below.

(In this case, the H.STAT variable resistor and the V.STAT magnet influence each other, so be sure to perform adjustments while tracking.)

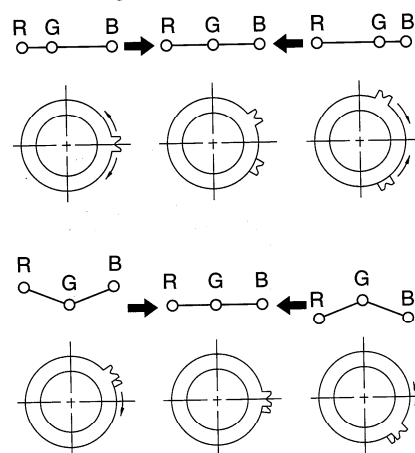
### • Operation of V.STAT magnet.

If the V.STAT magnet is moved in the direction of the ① and ② arrows, the red, green and blue points move as shown below.



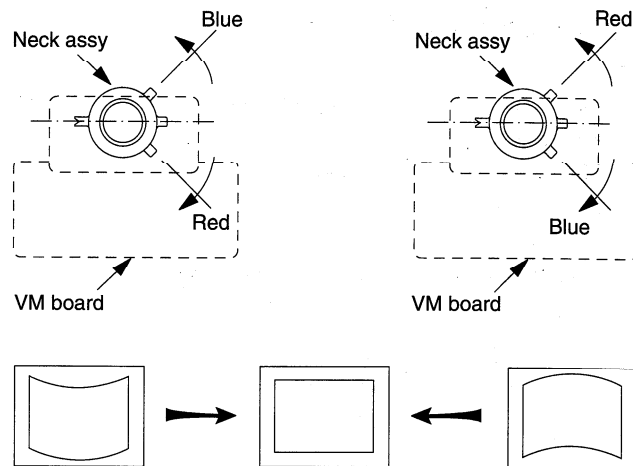
### • Operation of BMC (Hexapole) Magnet.

If the red, green and blue dots are not balanced or aligned, then use the BMC magnet to adjust in the manner described below.



- Y separation axis correction magnet adjustment.

1. Receive the cross hatch signal and adjust [PICTURE] to [MIN] and [BRIGHTNESS] to [STANDARD].
2. Adjust the Y separation axis correction magnet on the neck assembly so that the horizontal lines at the top and bottom of the screen are straight.



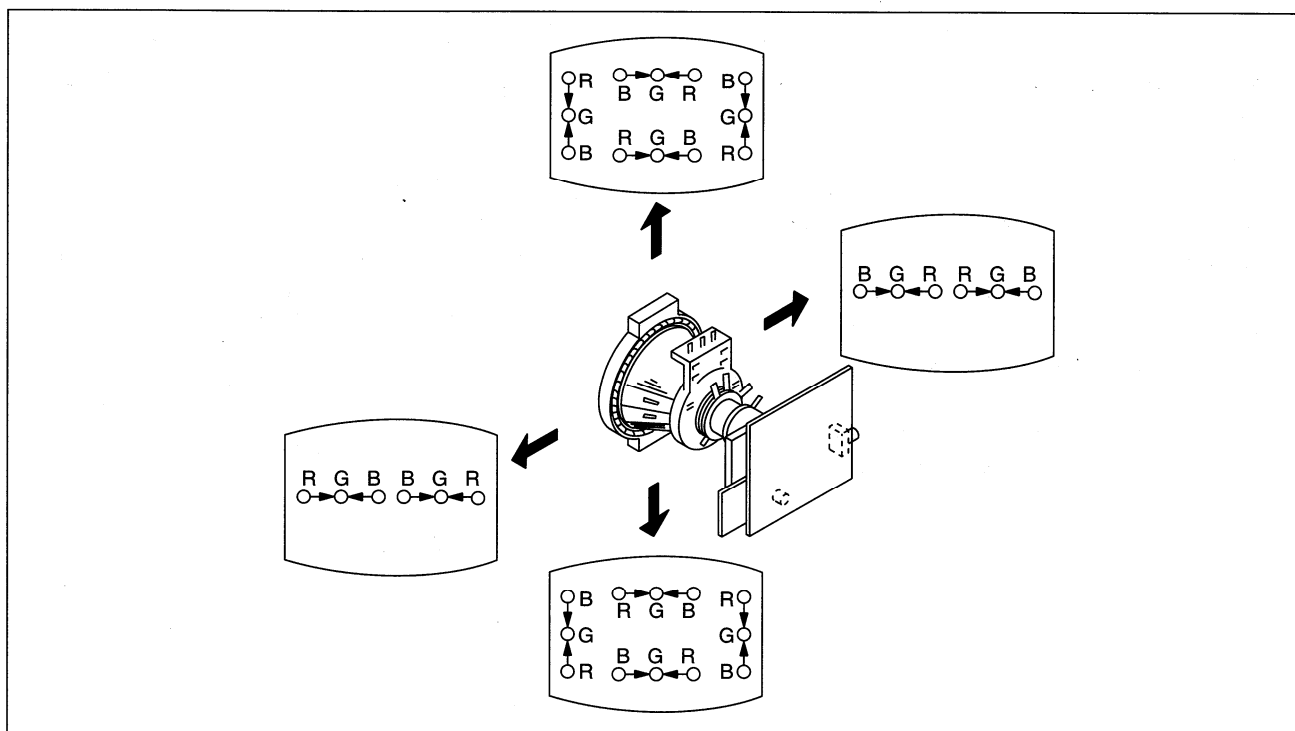
**Note**

1. The Red and Blue magnets should be equally far from the horizontal center line.
2. Do not separate the Red and Blue magnets too far. (Less than 8 mm)

**(2) Dynamic Convergence Adjustment**

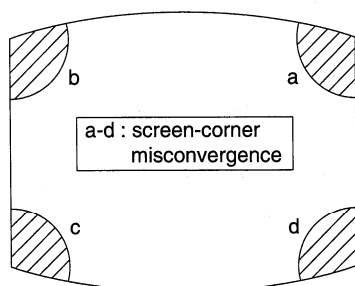
**Preparation:**

- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.
1. Slightly loosen the deflection yoke screws.
  2. Remove the deflection yoke spacer.
  3. Move the deflection yoke as shown in the figure below and optimize the convergence.
  4. Tighten the deflection yoke screws.
  5. Install the deflection yoke spacer.

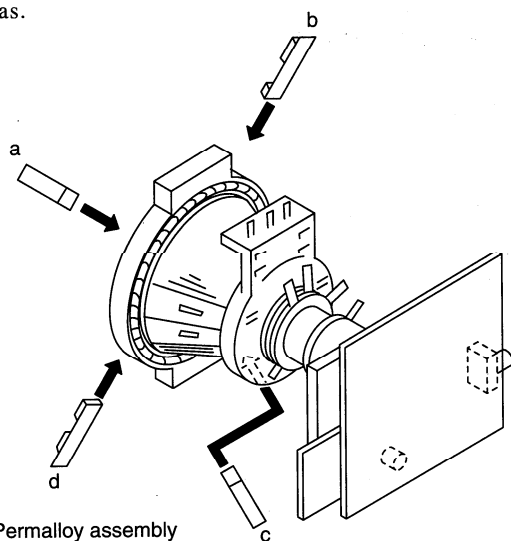




### (3) Screen-corner Convergence

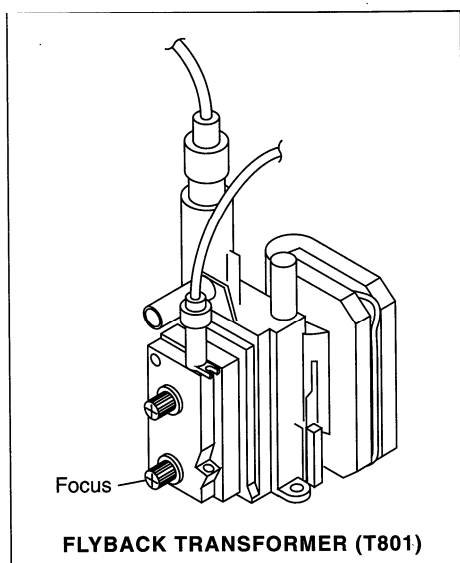


Affix a Permalloy assy corresponding to the misconverged areas.



### 4-3. FOCUS ADJUSTMENT

Adjust FOCUS control on the flyback transformer for the best focus.



### 4-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

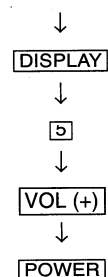
#### a. SOME ITEMS OF ADJUSTMENT

Item number	Adjustment item	Standard DATA		Note
		50Hz	60HZ	
35	SBR	17	17	SUB-BRIGHTNESS
37	GDR	2C		G. Drive
38	BDR	2C		B. Drive
39	GCF	07		G. Cut-off
3A	BCF	07		B. Cut-off

#### b. SERVICE MODE

##### Entering service mode

With the unit on standby



#### c. METHOD OF CANCELLATION FROM SERVICE MODE

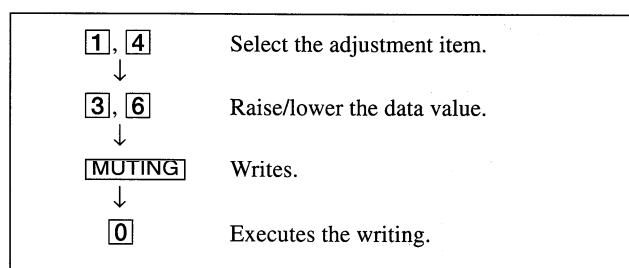
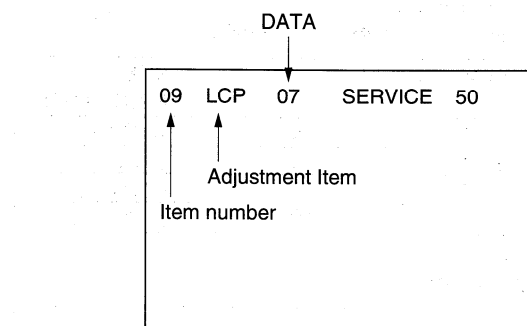
Set the standby condition (Press **POWER** button on the commander), then press **POWER** button again, hereupon it becomes TV mode.

#### d. METHOD OF WRITE INTO MEMORY

- 1) Set to Service Mode.
- 2) Press **1** (UP) and **4** (DOWN), select an item of adjustment.
- 3) Press **MUTING** button and it will indicate WRITE on the screen.
- 4) Press **0** button to write into memory.

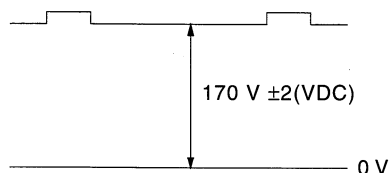
#### e. MEMORY WRITE CONFIRMATION METHOD

- 1) After adjustment, pull out the plug from AC outlet, and then plug into AC outlet again.
- 2) Turn the power switch ON and set to Service Mode.
- 3) Call the adjusted items again to confirm adjustments were made.



#### 1. G2 (SCREEN) ADJUSTMENT (RV701)

- 1) Set the PICTURE and BRIGHTNESS to normal.
- 2) Put to VIDEO input mode without signals.
- 3) Set to Service Mode.
- 4) Change item number 8C BLU data from "01" to "00"  
(To turn off Blue Back).
- 5) Press [MUTING] and [0] to write the data into the memory.
- 6) Connect R, G and B of the C board cathode to the oscilloscope.
- 7) Adjust G2 (RV701) volume to the value below.



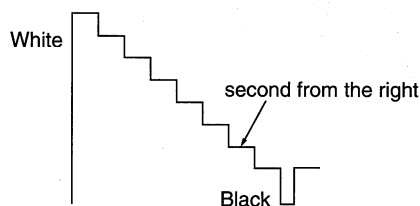
- 8) Re-set item number 8C BLU data from "00" back to "01".
- 9) Press [MUTING] and [0] to write the data into the memory.

#### 2. WHITE BALANCE ADJUSTMENT

- 1) Set to Service Mode.
- 2) Input white raster signal.
- 3) Set the PICTURE to minimum.
- 4) Select 35 SBR with [1] and [4], and then set the level to minimum with [3] and [6].
- 5) Select 39 GCF and 3A BCF with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
- 6) Set the PICTURE to maximum.
- 7) Select 37 GDR and 38 BDR with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
- 8) Write into the memory by pressing [MUTING] then [0].

#### 3. SUB BRIGHT ADJUSTMENT

- 1) Set to service mode.
- 2) Input a staircase signal of black to white from the pattern generator.
- 3) BRIGHTNESS .... 50%.  
PICTURE ..... minimum
- 4) Select 55 SRR with [1] and [4], and adjust SRR level with [3] and [6] so that the second stripe from the right is dimly lit.



## SECTION 5

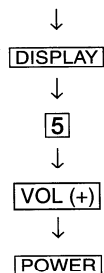
### CIRCUIT ADJUSTMENTS

#### 5-1. ADJUSTMENTS WITH COMMANDER-

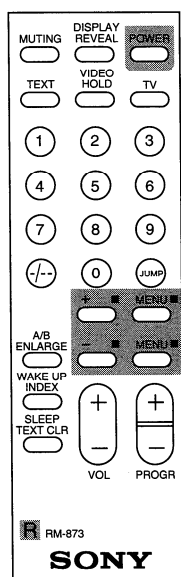
Service adjustments are made with the RM-873 that comes with this unit.

##### Entering service mode

With the unit on standby



This operation sequence puts the unit into service mode.

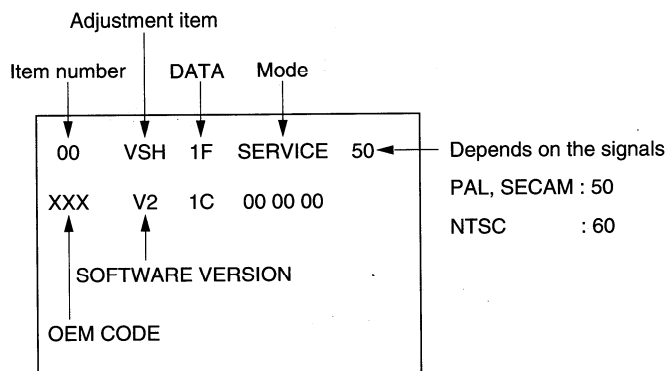


RM-873

- 1, 4 Select the adjustment item.
- ↓
- 3, 6 Raise/lower the data value.
- ↓
- MUTING Writes.
- ↓
- 0 Executes the writing.

- 7, 0 All the data becomes the values in memory.
- 8, 0 All user control goes to the standard state.
- 5, 0 Service data initialization (Be sure not to use usually.)
- 2, 0 Write 50Hz adjustment data to 60Hz, or vice versa.

The screen display is :

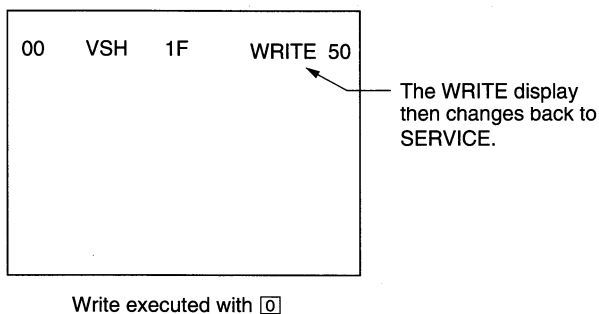
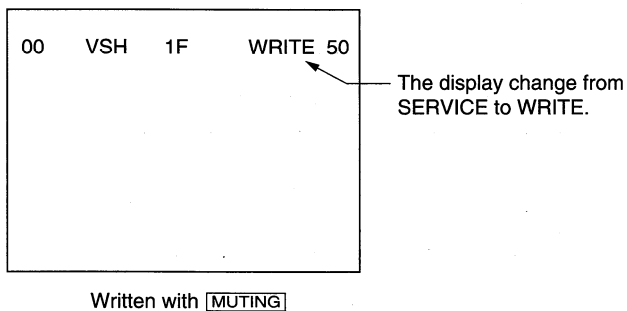
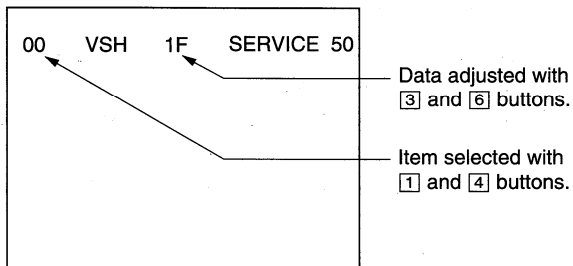


## 5-2. ADJUSTMENT METHOD

Item Number 00

This explanation uses V-Position as an example.

1. Select 00 VSH with the **[1]** and **[4]** buttons.
2. Raise/lower the data with the **[3]** and **[6]** buttons.
3. Select the optimum state. (The standard is 1F for PAL reception.)
4. Write with the **[MUTING]** button. (The display changes to WRITE.)
5. Execute the writing with the **[0]** button. (The WRITE display will be changed back to SERVICE.)



Use the same method for Items Number 00-96. Use **[1]** and **[4]** to select the adjustment item, use **[3]** and **[6]** to adjust, write with **[MUTING]**, then execute the write with **[0]**.

- Note :**
1. For adjustment items that have different standard data between 50Hz or 60Hz and normal or wide, be sure to use the respective input signal while adjusting.
  2. In **[WRITE]**, the data for all items are written into memory together.

Adjustment Item Table

Item number	Adjustment Item	Data range	Standard data	Note	Device
00	VSH	00-3F	1F	V Position	CXA2050S (Y/C/J)
01	VSZ	00-3F	1F	V Size	
02	HSZ	00-0F	07	H Position	
03	HSZ	00-3F	1F	H Size	
04	SCR	00-0F	07	S Correction	
05	VLN	00-0F	07	V Linearity	
06	PAP	00-3F	1F	Pin Comp	
07	PPH	00-0F	07	Pin Phase	
08	UCP	00-0F	07	Up Corner Pin	
09	LCP	00-0F	07	Low Corner Pin	
0A	BOW	00-0F	07	AFC-Bow	
0B	ANG	00-0F	07	AFC-Angle	
0C	VAP	00-3F	2F	V Aspect	
0D	VSC	00-3F	1F	V Scroll	
0E	ULN	00-0F	00	UP V Linearity	
0F	LLN	00-0F	00	LOW V Linearity	
10	<b>EHH</b>	00-03	00	EHT-H	
11	<b>EHV</b>	00-03	01	EHT-V	
12	<b>HBS</b>	00-01	01	H Blk Wid. ON/OFF	
13	<b>LBK</b>	00-0F	0F	L Blk Width	
14	<b>RBK</b>	00-0F	0F	R Blk Width	
15	<b>JSW</b>	00-01	00	Jump ON/OFF Sw	
16	<b>VBW</b>	00-03	02	V Blk Wid. Con.	
17	<b>AFC</b>	00-03	03	AFC-Mode	
18	<b>FHH</b>	00-01	00	FH-HI	
19	<b>VFQ</b>	00-03	00	V-Freq	
1A	<b>VOF</b>	00-01	00	V OFF	
1B	<b>VMD</b>	00-01	00	CD-Mode 2	
1C	<b>CMD</b>	00-01	00	CD-Mode	
1D	<b>ITL</b>	00-03	00	Inter lace	
1E	<b>ZSW</b>	00-01	00	ZOOM SW	
1F	<b>POV</b>	00-03	03	Pre-Over	
20	<b>CT1</b>	00-01	01	C-Trap(NTSC)	
21	<b>CT2</b>	00-01	01	C-Trap(PAL)	
22	<b>CF0</b>	00-0F	07	C-Trap f0 Adj	
23	<b>SF0</b>	00-01	01	Sharpness f0 Adj	
24	<b>TOT</b>	00-01	01	TOT Filter SW	
25	<b>CSW</b>	00-03	00	Color SW	
26	<b>XTL</b>	00-03	00	Xtal	
27	<b>CV1</b>	00-01	01	CV/YC Select(NTSC)	
28	<b>CV2</b>	00-01	01	CV/YC Select(PAL)	
29	<b>VM</b>	00-01	01	VM ON/OFF	
2A	<b>YVM</b>	00-01	00	YSI/VM SW(0:YSI)	
2B	<b>DPC</b>	00-01	01	D-Pic ON/OFF	
2C	<b>DCO</b>	00-01	01	Dynamic Color	
2D	<b>GMM</b>	00-03	01	Gamma	
2E	<b>DTR</b>	00-01	01	DC-Tran	
2F	<b>DL1</b>	00-07	01	Delay Ctrl.(PAL)	
30	<b>DL2</b>	00-07	03	Delay Ctrl.(NTSC)	
31	<b>DL3</b>	00-07	03	Delay Ctrl.(SECAM)	
32	SCN	00-0F	09	Sub-Contrast	
33	SCO	00-0F	0B	Sub-Color	
34	SHU	00-0F	05	Sub-Hue	
35	SBR	00-3F	17	Sub-Bright	
36	<b>SSH</b>	00-07	04	Sub-Sharpness	
37	GDR	00-3F	2C	G-Drive	
38	BDR	00-3F	2C	B-Drive	
39	GCF	00-0F	07	G-Cutoff	

Note:   Bold items are fixed data.

Adjustment Item Table

Item number	Adjustment Item	Data range	Standard data	Note	Device
3A	BCF	00-0F	07	B-Cutoff	CXA2050S (Y/C/J)
3B	<b>RPO</b>	00-03	01	Ref-Position	
3C	<b>PON</b>	00-01	01	Pic-ON	
3D	<b>RON</b>	00-01	01	R ON	
3E	<b>GON</b>	00-01	01	G ON	
3F	<b>BON</b>	00-01	01	B ON	
40	<b>AKF</b>	00-01	00	AKB ON/OFF SW	
41	<b>ESY</b>	00-01	00	Ext Sync Select	
42	<b>AGG</b>	00-01	00	Aging Mode ON/OFF	
43	<b>ABL</b>	00-01	01	ABL Pic/Pic&Brt SW(0:Pic only)	
44	<b>LIM</b>	00-01	00	RGB Limit ON/OFF(0:ON)	
45	<b>PB</b>	00-01	01	Picture Booster	TDA9170 (Picture Improve)
46	<b>BOF</b>	00-01	01	Black Offset	
47	<b>UVG</b>	00-3F	1F	User Var. Gamma	
48	<b>ADG</b>	00-3F	1F	Adaptive Gamma	
49	<b>NLA</b>	00-3F	0F	Non-linear Amp	
4A	<b>WDS</b>	00-02	00	Window Select	
4B	<b>LST</b>	00-0F	07	Window Line Start	
4C	<b>LSP</b>	00-0F	07	Window Line Stop	
4D	<b>FST</b>	00-0F	07	Window Field Start	
4E	<b>FSP</b>	00-0F	07	Window Field Stop	
4F	<b>VA</b>	00-01	01	V Aperture on/off	CXA1315 (V-AP)
50	<b>VAW</b>	00-03	02	V Aperture white	
51	<b>VAB</b>	00-03	00	V Aperture black	
52	<b>VAC</b>	00-0F	03	V Aperture core	
53	<b>SHP</b>	00-3F	0F	Sharpness	CXA1315 (LTI)
54	<b>VML</b>	00-3F	29	VM Limiter	
55	<b>COR</b>	00-3F	17	Coreing	
56	<b>DOF</b>	00-3F	15	DSC Offset	
57	<b>DGA</b>	00-3F	1F	DSC Gain	
58	<b>DLT</b>	00-01	01	Delay Time	
59	<b>SDL</b>	00-0F	00	SEL Pin Delay	SDA9189X (PinP)
5A	<b>POH</b>	00-FF	14	H Position(MSB8bit)	
5B	<b>POV</b>	00-FF	27	V Position	
5C	<b>PMD</b>	00-1F	00	Pinp Display Mode	
5D	<b>WRP</b>	00-0F	00	Write Position	
5E	<b>HDL</b>	00-1F	0B	HSI Delay	
5F	<b>AMS</b>	00-01	00	Decimation Filter	
60	<b>VDL</b>	00-1F	0B	VSI Delay	
61	<b>VSP</b>	00-1F	06	VSP Delay	
62	<b>CON</b>	00-0F	06	Contrast	
63	<b>FRY</b>	00-0F	09	Frame Y	
64	<b>FRV</b>	00-0F	00	Frame V	
65	<b>FRU</b>	00-0F	00	Frame U	
66	<b>INF</b>	00-01	01	Inner Frame	
67	<b>FWV</b>	00-03	02	Frame Width V	
68	<b>FWH</b>	00-07	07	Frame Width H	
69	<b>PLL</b>	00-03	02	PLL Loop Filter	
6A	<b>PDV</b>	00-0F	00	Pedestal V	
6B	<b>PDU</b>	00-0F	00	Pedestal U	
6C	<b>DAT</b>	00-01	00	DAC Stream Control	
6D	<b>DAN</b>	00-01	00	DAC Control	
6E	<b>WIP</b>	00-01	00	Wipe on/off	
6F	<b>WSP</b>	00-03	00	Wipe Speed	

Note:   Bold items are fixed data.

Adjustment Item Table

Item number	Adjustment Item	Data range	Standard data	Note	Device
70	<b>FAW</b>	00-FF	08	NICAM FAW Thresh	MSP3410 (Audio Stereo Decoder)
71	<b>CTM</b>	00-FF	08	NICAM Error Bit(MONO)	
72	<b>CTN</b>	00-FF	50	NICAM Error Bit(NICAM)	
73	<b>WCD</b>	00-FF	0A	W.G.Change Data	
74	<b>WST</b>	00-FF	15	W.G.STEREO Threshold	
75	<b>WTM</b>	00-FF	50	W.G.Timer	
76	<b>WBT</b>	00-FF	EA	W.G.BILINGUAL Threshold	
77	<b>ACG</b>	00-01	01	AGC AUTO/CONST.	
78	<b>CDB</b>	00-3F	28	AGC GAIN CONST.	
79	<b>FGP</b>	00-7F	24	FM(BG,I,DK)Prescale	
7A	<b>FMP</b>	00-7F	40	FM(M) Prescale	
7B	<b>WGP</b>	00-7F	3C	W.G.Prescale	
7C	<b>NIP</b>	00-7F	7F	NICAM Prescale	
7D	<b>CRM</b>	00-01	00	Carrier Mute	
7E	<b>CML</b>	00-03	00	Carrier Mute Level	
7F	<b>ACO</b>	00-01	01	Audio Clock Out	
80	<b>WAC</b>	00-0F	01	W.G Agreement count	
81	<b>DLY</b>	00-FF	30	Stereo Search Delay	
82	<b>DLG</b>	00-FF	10	W.G. Search Delay	
83	<b>TXP</b>	00-0F	0E	Text Picture cont.	SAA 5281
84	<b>MXP</b>	00-0F	0F	Text Mix mode Pic.	
85	<b>BB1</b>	00-3F	1D	BBE control High	CXA1315 (BBE)
86	<b>BB2</b>	00-3F	1D	BBE control Middle	
87	<b>BB3</b>	00-3F	28	BBE control Low	
88	<b>ATW</b>	00-03	01	Auto Wide Ident Speed	CXP5068
89	<b>BKP</b>	00-FF	00	Blk off Picture	CXP85340 (MICRO CONTROLLER)
8A	<b>OSH</b>	00-3F	0A	OSD Position H	
8B	<b>ODL</b>	00-FF	00	Power On Delay	
8C	<b>BLU</b>	00-01	01	Blue Back on/off	
8D	<b>ROC</b>	00-0F	08	N/S Center Vol.	
8E	<b>ROS</b>	00-07	04	User Step	
8F	<b>DKS</b>	00-01	00	D/K Stereo Search	
90	<b>MUT</b>	00-01	01	No Sync. Mute	
91	<b>DID</b>	00-01	00	Disable Degauss	
92	<b>DWZ</b>	00-01	01	Disable Widezoom	
93	<b>BCS</b>	00-01	00	BASS Center Shift	
94	<b>BVS</b>	00-01	00	Basso Volume Shift	
95	<b>OP0</b>	00-FF	01	Option 0	
96	<b>OP1</b>	00-FF	3E	Option 1	

NOTE

- **Fixed items** are fixed data
- 50 ... 50Hz data, 60 ... 60Hz data
- Standard data listed on the Adjustment Item Table are reference values, therefore it may be different for each model and for each mode.

ITEM INFORMATION.

No. 95 OP0

Item	-	-	-	-	-	-	-	Fastext
KV-J29SN21/SZ2	0	0	0	0	0	0	0	1
KV-J29MF1/MN2	0	0	0	0	0	0	0	0

# No. 96 OP1

Item	Wide	Woofers	Tilt	VM	Comb type	Comb filter	SECAM	B/G only
KV-J29SN21/SZ2	0	1	1	1	0	0	0	1
KV-J29MF1	0	0	1	1	0	0	1	0
KV-J29MN2	0	1	1	1	0	0	1	0

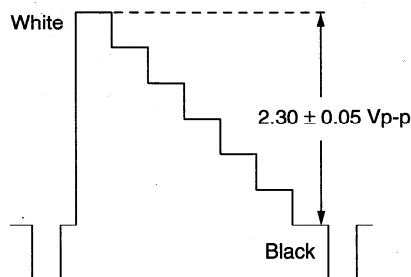
## • 95 OP0, 96 OP1

- Fastext : 0 → Automatic mode, 1 → Fastext mode  
B/G only : 0 → Multi system, 1 → B/G system only  
Comb type : 0 → Glass comb filter, 1 → Digital comb filter  
Wide : 0 → 4:3 model, 1 → 16:9 model

## 5-3. PICTURE QUALITY ADJUSTMENTS

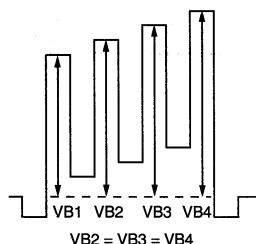
### SUB CONTRAST ADJUSTMENT (SCN)

1. Receive a PAL color-bar.
2. Set service item 3E GON and 3F BON to data "00". Set the PICTURE 100%, BRIGHTNESS 50% and COLOR MIN.
3. Connect an oscilloscope to the pin ⑥ (R OUT) of CN117, A board.
4. Set to Service Mode and select 32 SCN using [1] and [4] of the commander, then adjust to  $2.30 \pm 0.05V$  using [3] and [6].
5. Press [MUTING] → [0] of the commander to write the data.
6. Receive a NTSC color-bar and adjust 32 SCN as step 2 to 5.
7. Set service item 3E GON and 3F BON to data "01".



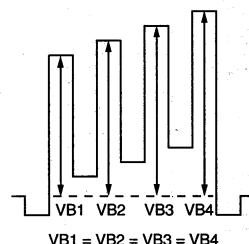
### SUB COLOR ADJUSTMENT (SCO)

1. Input a PAL color-bar.
2. Set service item 49 NLA to data "00".  
Set to the following condition:  
PICTURE 100%, BRIGHTNESS 50%, COLOR 50%
3. Connect an oscilloscope to the pin ④ (B OUT) of CN117, A board.
4. Set to Service Mode and select 33 SCO with [1] and [4] of the commander then adjust to  $VB2=VB3=VB4$  with [3] and [6].
5. Press [MUTING] → [0] of the commander to write the data.
6. Adjust 33 SCO as step 2 to 5 when receiving NTSC color-bar.
7. Set service item 49 NLA to data "0F" and write the data.



### SUB HUE ADJUSTMENT (SHU)

1. Receive a NTSC color-bar.
2. Set the following condition:  
PICTURE 100%, BRIGHTNESS 50%, COLOR 50%, HUE -0%
3. Connect an oscilloscope to the pin ④ (B OUT) of CN117, A board.
4. Select 34 SHU with [1] and [4] of the commander by setting to Service Mode and adjust to  $VB1=VB2=VB3=VB4$  with [3] and [6].



5. Press [MUTING] → [0] of the commander to write the data.
6. Set to WIDE Mode by [MENU] button to write the same value as in step 4.



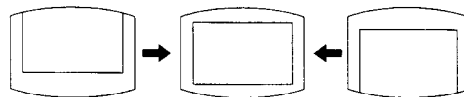
#### 5-4. A BOARD ADJUSTMENT AFTER IC003 (MEMORY) REPLACEMENT

1. Enter to Service Mode.
2. Press commander buttons **[5]** and **[0]** (Data Initialize), and **[2]** and **[0]** (Data Copy) to initialize the data.
3. Call each item number and check if the respective screen shows the normal picture.  
In cases where items are not well adjusted, rectify the items with fine adjustment.  
Write the data per each item number (**[MUTING]** + **[0]**).
4. Select item numbers 95 OP0 and 96 OP1 and respectively set the bit per model with command buttons **[3]** and **[6]**.
5. Press commander buttons **[8]** and **[0]** (Test Normal) to return to the data that was set on the shipment from the factory.  
(This will also cancel Service Mode.)

#### 5-5. PICTURE DISTORTION ADJUSTMENT

Item Number 00 – 0B

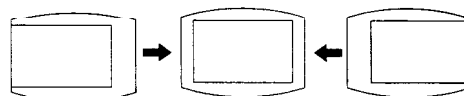
00 VSH(V POSITION)



01 VSZ(V SIZE)



02 HSH(H POSITION)



03 HSZ (H SIZE)



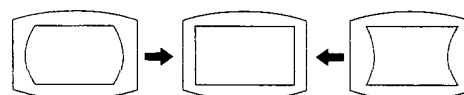
04 SCR(VERTICAL S-Correction)



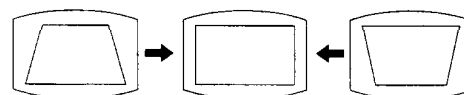
05 VLN(V LINEARITY)



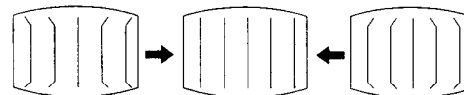
06 PAP (PIN AMP)



07 PPH(PIN PHASE)



08 UCP(Upper Corner Pin)  
09 LCP(Lower Corner Pin)

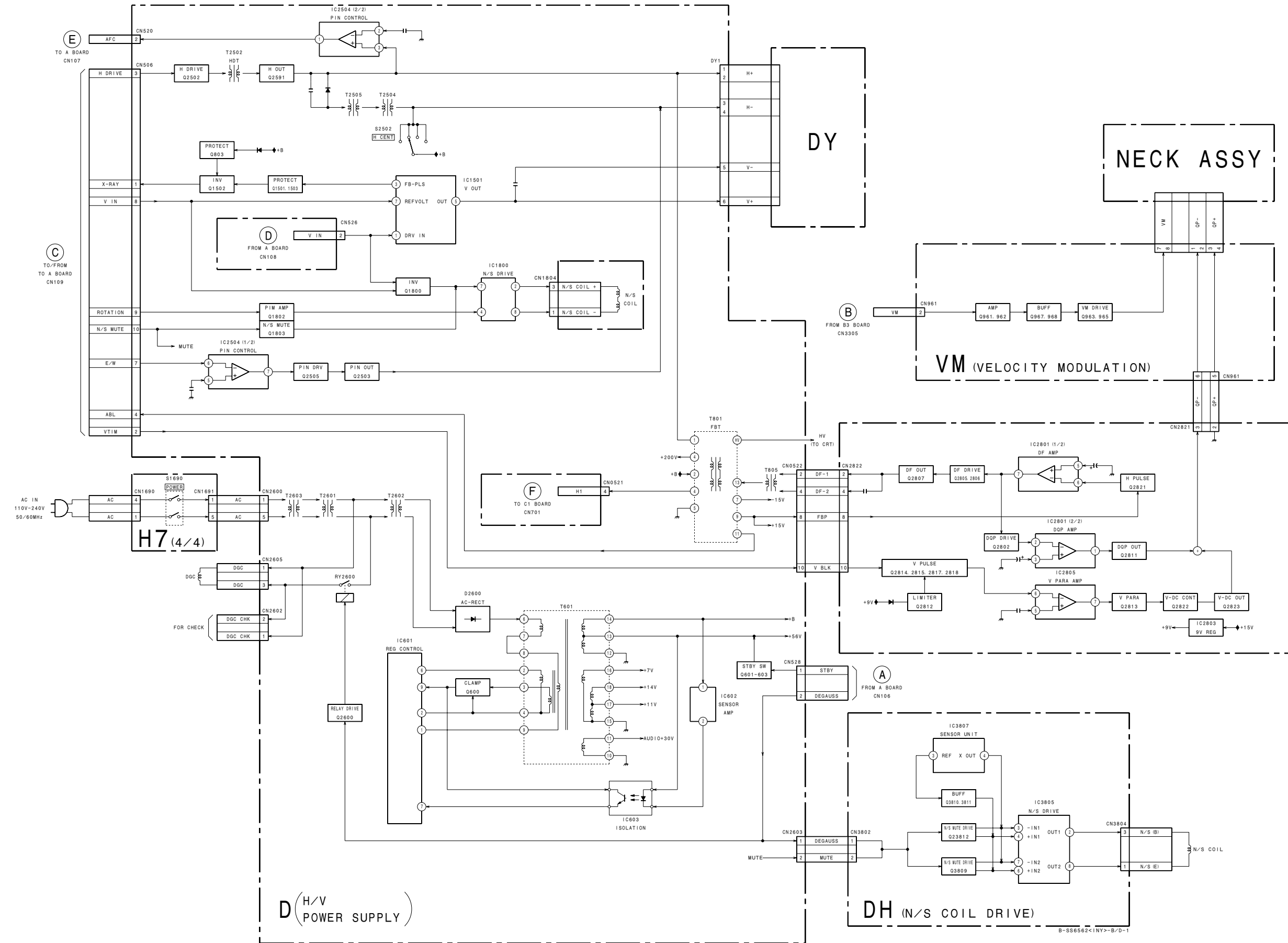


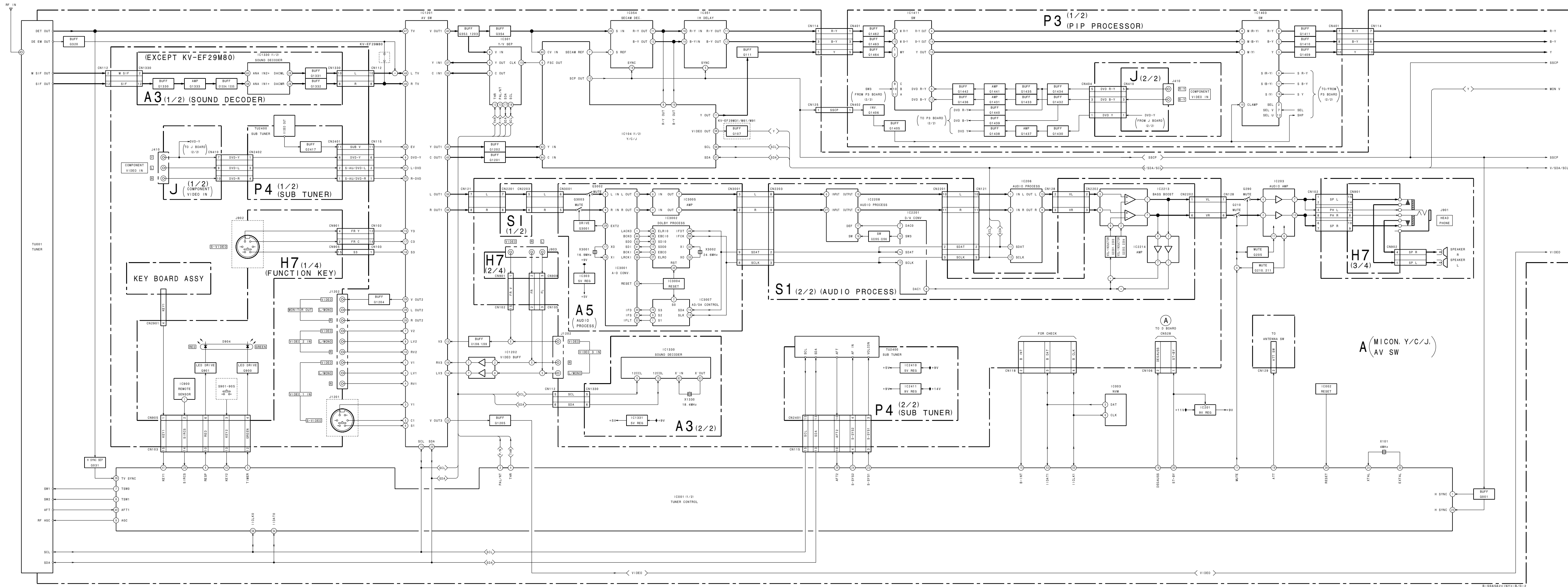
0A VBOW(AFC.BOW)

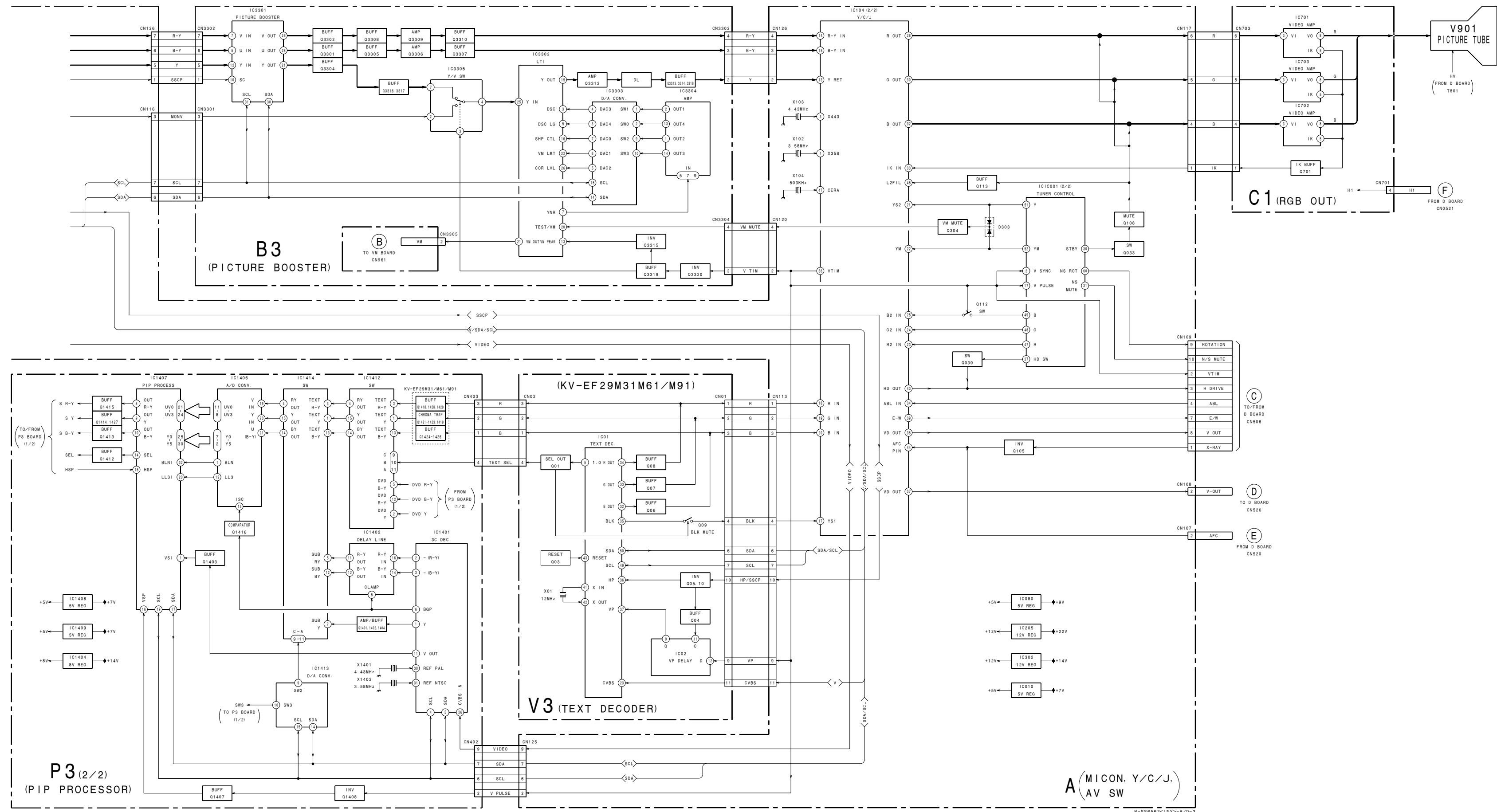


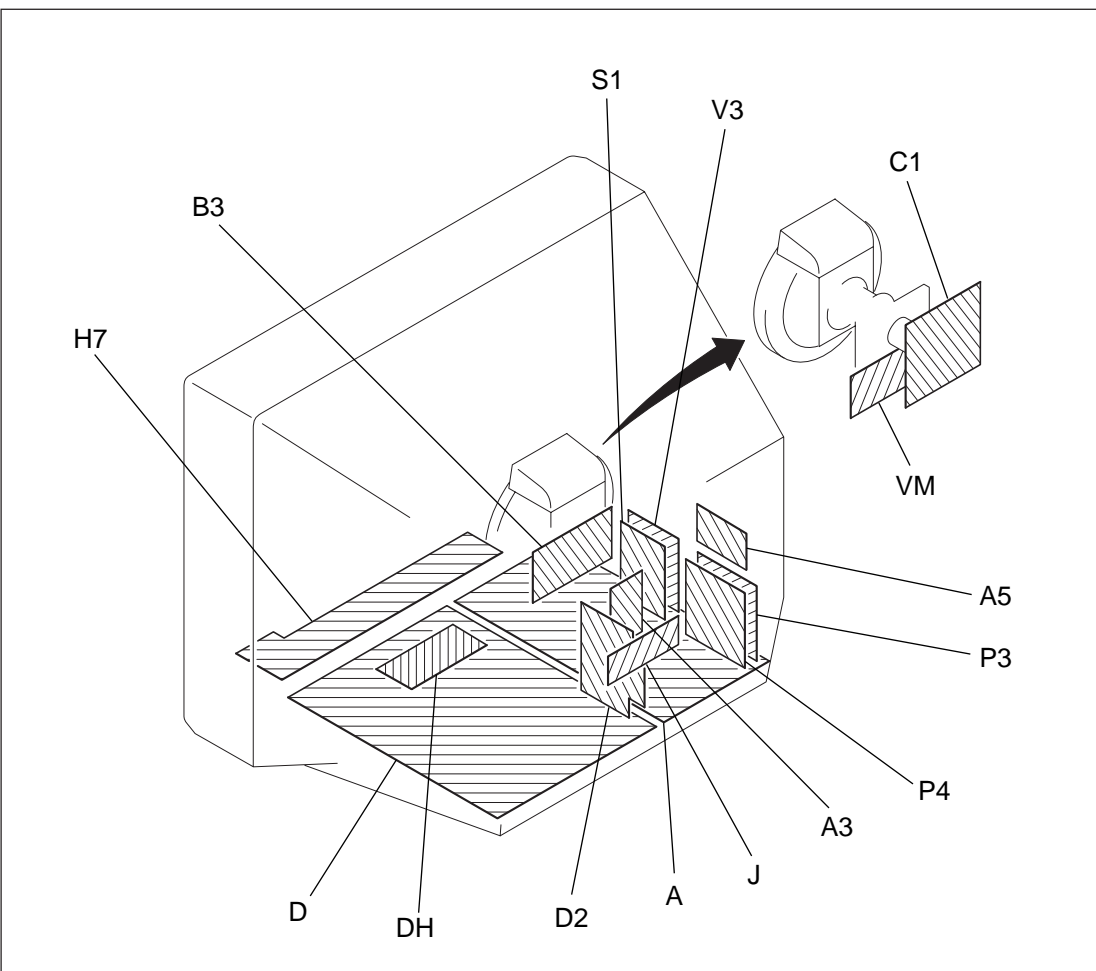
0B VAG(AFC.ANGLE)





















- All capacitors are in  $\mu\text{F}$  unless otherwise noted. ( $\text{pF}$ :  $\mu\text{pF}$ )  
Capacitors without voltage indication are all 50 V.
- Indication of resistance, which does not have one for rating electrical power, is as follows.

Pitch: 5 mm  
Rating electrical power 1/4 W (CHIP : 1/10 W)

- All resistors are in ohms.
-  : nonflammable resistor.
-  : fusible resistor.
-  : internal component.
-  : panel designation, and adjustment for repair.
- All variable and adjustable resistors have characteristic curve B unless otherwise noted.
-  : earth-ground.
-  : earth-chassis.
- All voltages are in V.
- Readings are taken with a 10 M digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerances.
- \* : Can not be measured.
- NO MARK: PAL
- < : SECAM
- ( ) : NTSC 3.58 MHz
- Circled numbers are waveform references.
-  : B + bus.
-  : B - bus.
-  : Signal path.

RESISTOR	: RN	METAL FILM	
	: RC	SOLID	
	: FPRD	NONFLAMMABLE CARBON	
	: FUSE	NONFLAMMABLE FUSIBLE	
	: RW	NONFLAMMABLE WIREWOUND	
COIL	: RS	NONFLAMMABLE METAL OXIDE	
	: RB	NONFLAMMABLE CEMENT	
	: LF-8L	MICRO INDUCTOR	
	CAPACITOR	: TA	TANTALUM
		: PS	STYROL
: PP		POLYPROPYLENE	
: PT		MYLAR	
: MPS		METALIZED POLYESTER	
	: MPP	METALIZED POLYPROPYLENE	
	: ALB	BIPOLAR	
	: ALT	HIGH TEMPERATURE	
	: ALR	HIGH RIPPLE	

**Note:** The components identified by shading and mark  are critical for safety. Replace only with part number specified.

**Terminal name of semiconductors in silk screen printed circuit (\*)**

	Device	Printed symbol	Terminal name	Circuit
①	Transistor		Collector Base Emitter	
②	Transistor		Collector Base Emitter	
③	Diode		Cathode Anode	
④	Diode		Cathode Anode (NC)	
⑤	Diode		Cathode Anode (NC)	
⑥	Diode		Common Anode Cathode	
⑦	Diode		Common Anode Cathode	
⑧	Diode		Common Anode Anode	
⑨	Diode		Common Anode Anode	
⑩	Diode		Common Cathode Cathode	
⑪	Diode		Common Cathode Cathode	
⑫	Diode		Anode Cathode Anode Cathode	
⑬	Transistor (FET)		Drain Gate Source	
⑭	Transistor (FET)		Drain Gate Source	
⑮	Transistor (FET)		Source Drain Gate	
⑯	Transistor		Emitter Collector Base	
⑰	Transistor		C2 B1 E1 E2 C1	
⑱	Transistor		C1 B1 E1 E2 C2	
⑲	Transistor		C1 E2 E2 E1 B1 C2	
⑳	Transistor		C1 E2 E2 E1 B1 C2	
㉑	Transistor		E2 B1 E1 C2 (B) E2	
㉒	Transistor		(B) E1 E2 B1 E1 C2	
㉓	Transistor		(B) E2 E1 C2 B1 C1	
—	Discrete semiconductor			

Ver.1.0

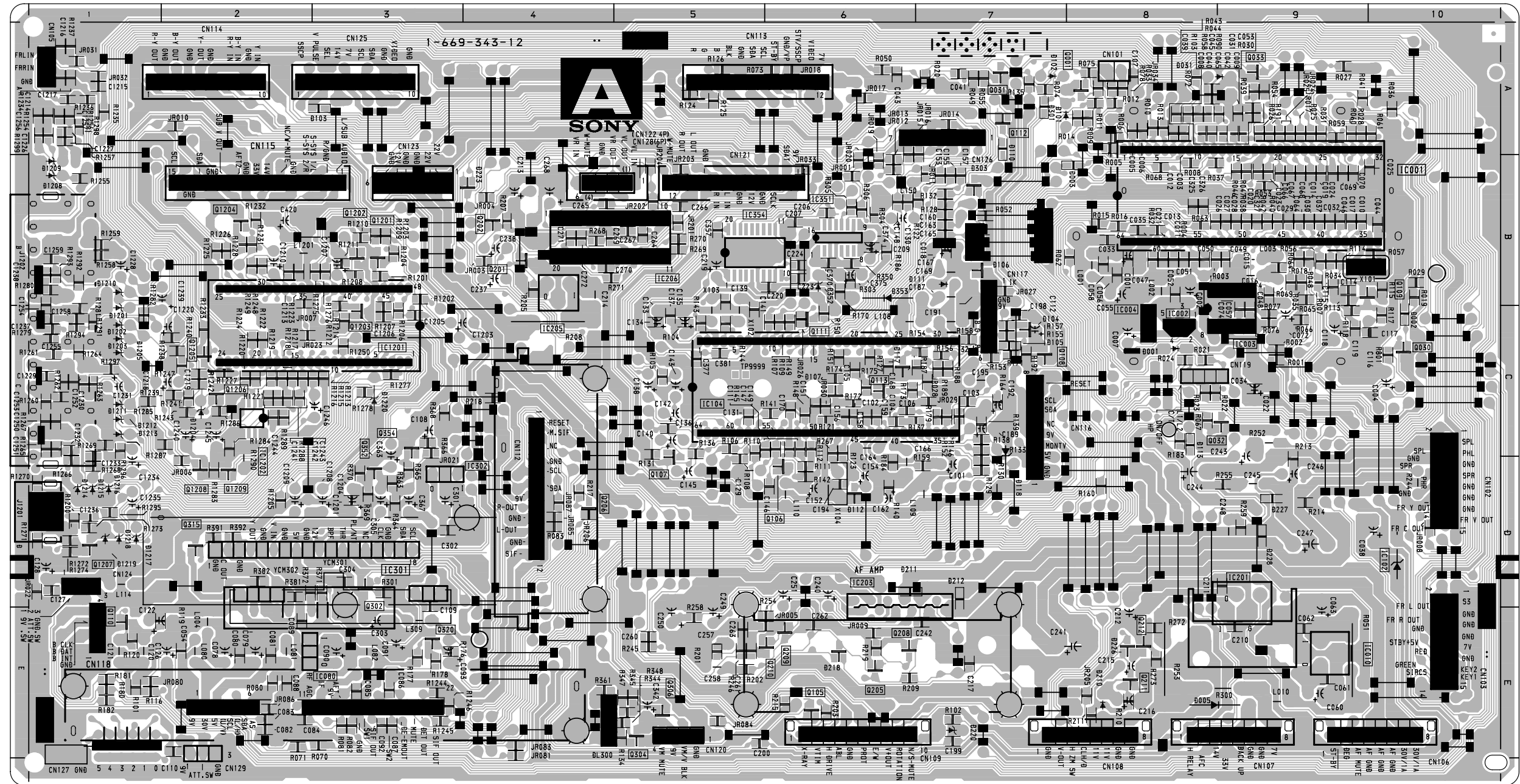
- A BOARD SEMICONDUCTOR LOCATION

IC		DIODE		
IC001	B-9			*
IC002	E-8	D001	C-8	
IC003	C-9	D002	C-10	③
IC010	E-9	D005	E-9	
IC080	E-2	D101	A-7	
IC102	D-10	D102	A-7	③
IC104	D-9	D103	A-3	③
IC1201	C-6	D104	C-7	③
IC203	C-6	D105	C-7	③
IC205	C-4	D106	B-7	④
IC206	B-5	D107	C-6	④
IC301	D-2	D110	A-7	③
IC302	D-3	D111	B-7	
IC351	B-6	D112	D-6	④
IC1201	C-3	D117	C-6	④
IC1201	C-3	D118	C-7	
IC1202	C-2	D210	E-8	
		D211	E-6	③
		D212	E-7	③
		D218	E-6	③
		D220	E-7	③
		D301	A-7	
	*	D303	B-7	③
Q001	A-8	①	D352	B-6
Q030	C-10	①	D353	B-6
Q031	A-7	①	D201	C-1
Q033	A-9	①	D202	C-1
Q105	E-6	①	D203	C-1
Q106	D-6	①	D204	C-2
Q107	D-5	①	D205	C-1
Q108	C-7	①	D208	B-1
Q111	C-6	①	D209	B-1
Q112	C-7	①	D210	B-1
Q113	A-6	①	D211	C-1
Q205	E-6	①	D212	C-1
Q208	E-6	①	D213	C-1
Q209	E-6	①	D214	D-1
Q210	E-6	①	D215	D-1
Q211	E-8	①	D216	D-1
Q302	D-3	①	D217	D-1
Q304	E-5	①	D218	D-1
Q320	E-3	①	D219	D-1
Q352	D-3	①	D220	C-3
Q354	C-3	①		
Q1201	B-3	①		
Q1202	B-3	①		
Q1203	C-3	①		
Q1204	B-2	①		
Q1205	C-2	①		
Q1206	C-2	①		
Q1207	D-1	①		
Q1208	D-2	①		
Q1209	D-2	①		
			CRYSTAL	
			X101	B-10
			X102	C-5
			X103	B-5
			X104	D-6

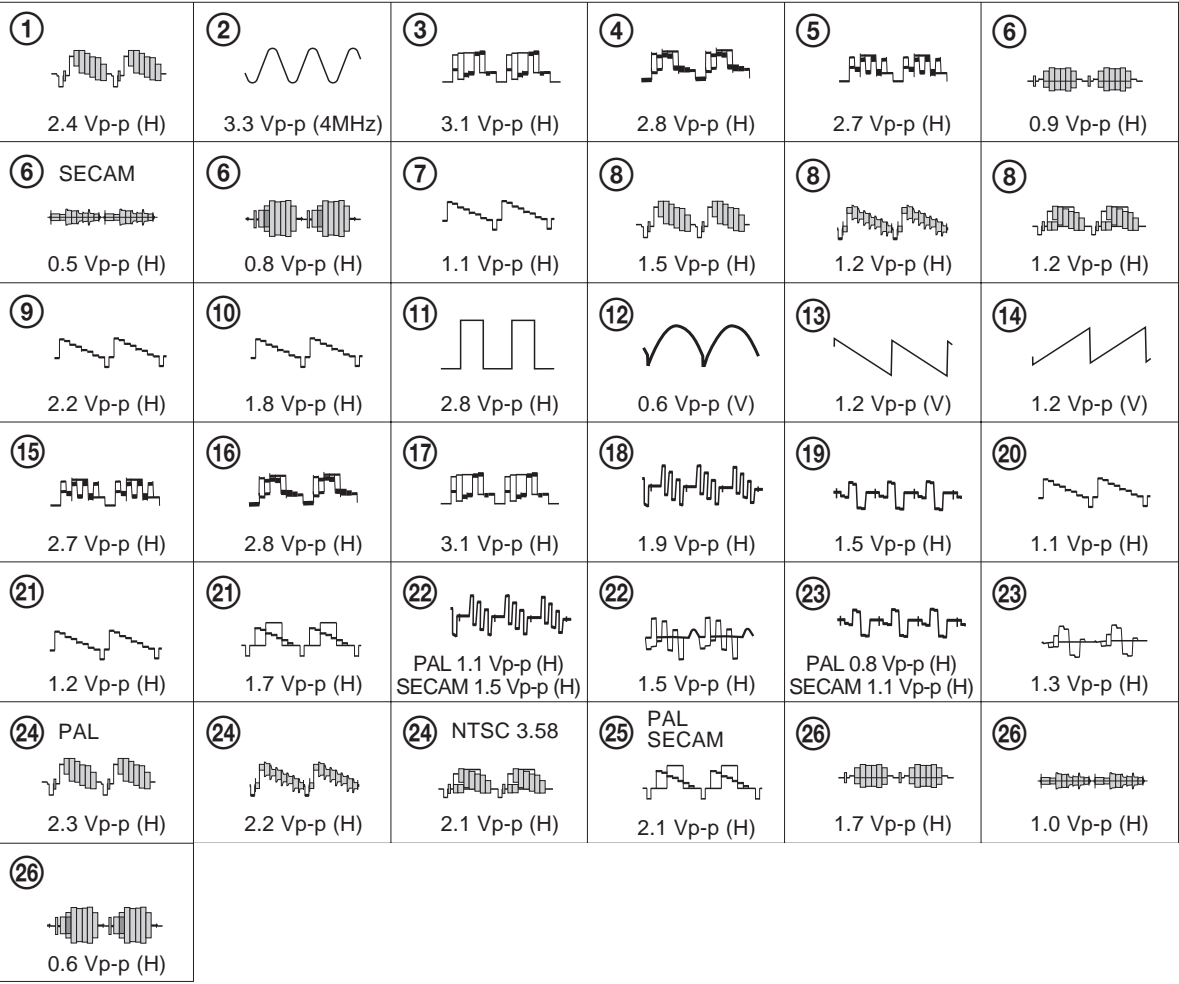
\*: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 55)



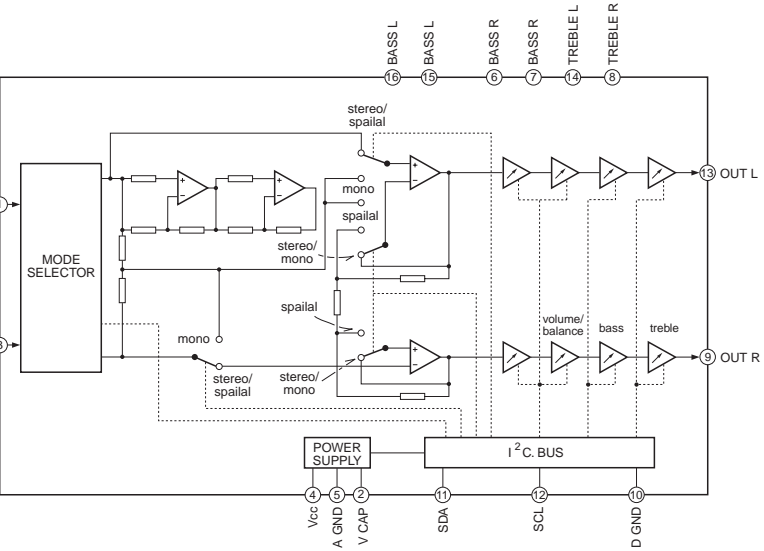
— A BOARD —



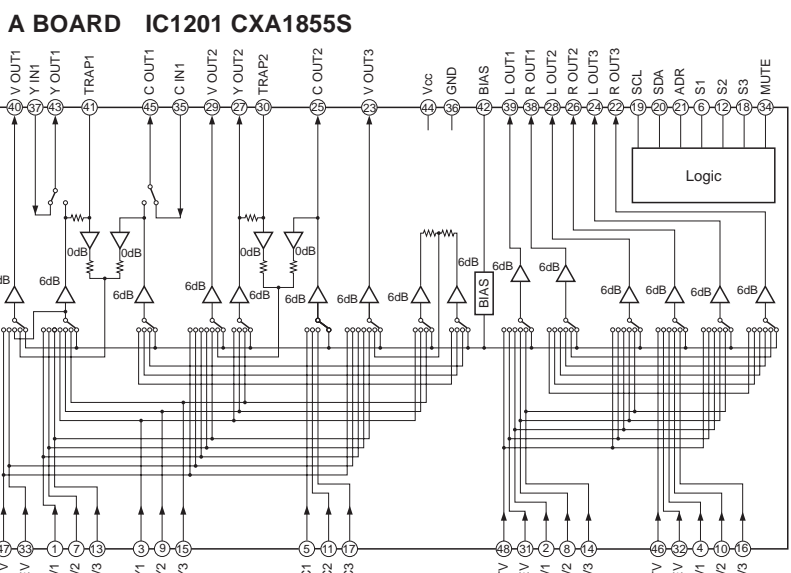
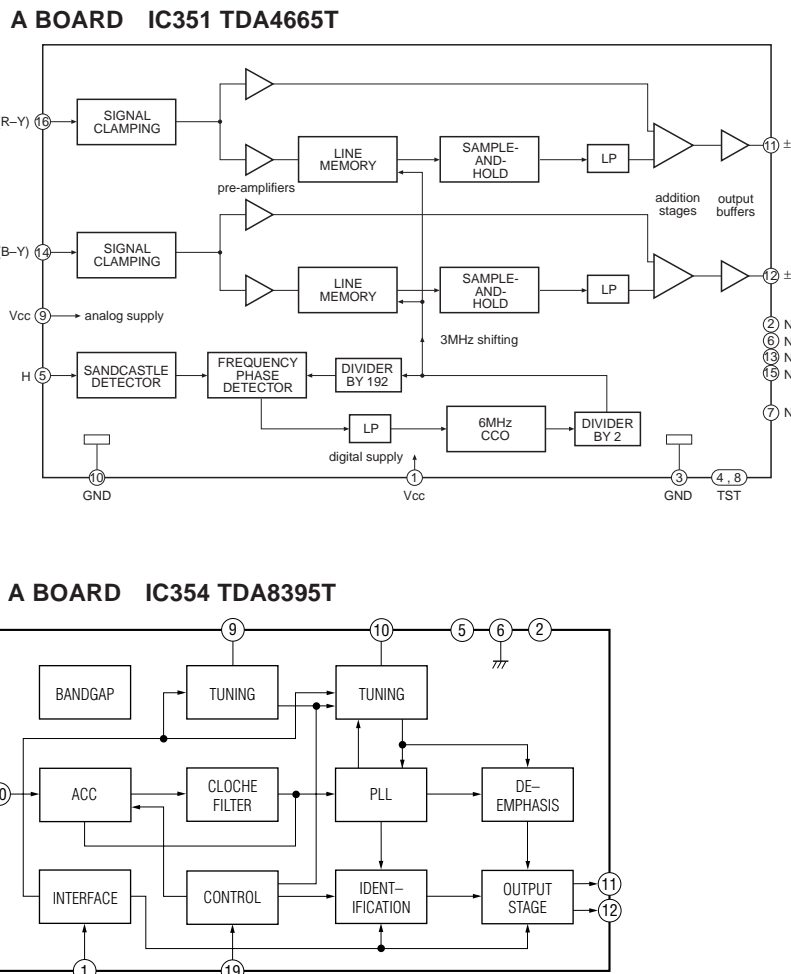




A BOARD * MARK PARTS LIST						
Ref No	KV-EF29M31	KV-EF29M1	KV-EF29M80(JE)	KV-EF29M80(ME)	KV-EF29M90	KV-EF29M91
C055	100 16V	100 16V	470 16V	470 16V	100 16V	100 16V
C072	330 16V	330 16V	470 16V	470 16V	330 16V	330 16V
C093	NOT USED	NOT USED	47 25V	47 25V	NOT USED	NOT USED
CH113	12P 1% T08	12P 1% T08	NOT USED	NOT USED	12P 1% T08	12P 1% T08
D110	15S355	15S355	NOT USED	NOT USED	NOT USED	15S355
IC001	CXP85452-090S	CXP85452-090S	CXP85452-090S	CXP85452-091S	CXP85452-090S	CXP85452-091S
J017	0-CHIP	0-CHIP	NOT USED	NOT USED	0-CHIP	0-CHIP
JW131	10MM	10MM	NOT USED	NOT USED	10MM	10MM
JW158	22 2W RS	22 2W RS	JW(17.5)	JW(17.5)	22 2W RS	22 2W RS
JW164	NOT USED	NOT USED	10MM	10MM	NOT USED	NOT USED
JW169	10MM	10MM	NOT USED	NOT USED	10MM	10MM
JW172	10MM	10MM	NOT USED	NOT USED	10MM	10MM
Q107	25C2712	25C2712	NOT USED	NOT USED	NOT USED	25C2712
R060	10K 1% CHIP	10K 1% CHIP	NOT USED	NOT USED	10K 1% CHIP	10K 1% CHIP
R073	47K 1% CHIP	47K 1% CHIP	10K 1% CHIP	10K 1% CHIP	10K 1% CHIP	47K 1% CHIP
R131	0-CHIP	0-CHIP	NOT USED	NOT USED	0-CHIP	0-CHIP
R136	0-CHIP	0-CHIP	NOT USED	NOT USED	0-CHIP	0-CHIP
R140	470 1% CHIP	470 1% CHIP	NOT USED	NOT USED	NOT USED	470 1% CHIP
R151	NOT USED	NOT USED	560 1% CHIP	560 1% CHIP	560 1% CHIP	NOT USED



Ref.	Pin	No.	Voltage [V]	Ref.	Pin	No.	Voltage [V]	Ref.	Pin	No.	Voltage [V]	Ref.	Pin	No.	Voltage [V]	Ref.	Pin	No.	Voltage [V]	Ref.	Pin	No.	Voltage [V]			
IC001	1	0	6		54	4	5		38	3	2		15	5	9		31	4	0			B	0			
	2	0	8		55	4	9		39	4	3		16	5	8		32	4	0			B	0			
	3	0	4	IC002	56	5	0		40	4	2		IC301	2	6	6		33	4	0		Q208	C	11.6		
	4	0	0			57	5	3		41	4	9			35	4	0			B	0					
	5	0	8		58	5	0		43	2	5			4	5	5		37	4	0		Q209	C	0		
	6	0	0		59	0	4		44	3	6			6	4	7		38	4	1			C	0		
	7	0	0		60	1	7		45	5	3			12	0	4		39	4	1			B	0		
	8	0	0	IC003					46	4	4		IC04	13	0	4	IC04	40	3	9		Q210	C	0		
	9	4	9		1	8	8		47	2	6			15	5	6			42	4	1			B	0	
	10	0	0		2	5	8		49	1	9			17	4	8			43	4	0			E	10.9	
	11	0	0		4	4	9		51	2	4			18	4	8		45	4	0		Q211	E	10.7		
12	4	8		IC003	5	4	8		52	4	4		IC302	1	15	9		46	4	0			C	10.7		
14	1	0			6	4	9		53	5	4			0	12	1		47	4	0			B	0		
15	4	9						54	5	0							48	4	1		Q302	E	0.3			
16	0	0		IC010	1	7	0		55	6	4		IC351	5	0	7		IC202	1	4	8			B	0.8	
17	0	8			0	4	9		56	4	7			11	2	9			2	2	4		Q304	E	0	
18	0	0		IC080	0	9	0		57	4	7			12	2	9			3	2	4			B	0	
19	0	0			0	5	0		58	3	7			14	1	4			3	2	4			B	0	
20	0	0							59	4	2			16	1	4			5	2	4		Q320	E	2.2	
21	4	9		IC104	2	5	0		60	4	3		IC354	1	1	5			6	4	8			B	2.8	
22	4	9				3	2	7			61	5		5			9	3	2					Q352	E	2.6
23	0	0			4	4	4		62	4	3			10	4	3		Q001	C	0	6			B	3.3	
24	0	0			6	5	6		63	4	0			11	5	7			E	0	6			B	0.3	
25	0	6							64	4	4			12	5	7		Q030	E	0	0			B	2.0	
26	4	8			7	15	5	2	IC201	1	10	3			19	0		Q030	E	0	0			B	0	
27	0	0			9	9				O	9	1			20	1	1			B	0			Q201	E	3
28	0	3			10	5	7	3	2	SW	4			IC201	1	4	1		Q031	E	8	8			B	4.0
29	4	8			11	4	0						2		4	1		2		4	1		Q1202	E	3	3
30	4	6		IC203	1	4	1		IC203	1	4	1			3	0		Q033	C	0	0			B	4.0	
31	0	0				2	0					2	0			4	4		0			B	4	5		
32	3	1	2		14	5	8			4	4	0			5	4	0		Q105	C	3	5			B	4.0
33	4	-			15	5	8			5	1	8			6	8	1			B	0	4			B	4.0
35	2	1			17	1	7			7	16	4			7	4	0		Q106	E	5	5			B	4.0
36	4	9			18	5	8			8	1	8			8	4	1			B	0	4			B	4.0
37	0	0			19	5	8			9	1	8			9	4	0		Q106	E	5	5			B	4.0
38	4	9			20	5	8			11	4	2			10	4	0			B	4	8			B	4.0
39	2	7			21	0	0			12	15	8			12	8	1		Q108	C	3	0			B	4.0
40	1	8			22	0			IC205	1	16	0			13	4	0			B	0			Q1205	E	3
41	4	9			23	5	8				O	11	8			14	4	0		Q111	E	3	2			B
42	4	9			24	5	8		IC206	1	5	8			15	4	0		Q112		C	0	0			B
43	4	9			25	5	8				2	11	7			16	4	0			B	8	8			B
44	4	9			27	1	8			3	5	8			17	4	0		Q112	C	0	0			B	0
45	2	7			28	2	6			8	5	9			18	4	5			Q113	E	2	5			B
46	4	9			29	1	8			9	5	8			19	4	5		Q113		E	2	5			B
47	0	0			30	2	3			6	5	9			20	3	9			Q113	E	2	5			B
48	0	0			31	2	1			7	5	9			21	3	9		Q113		E	2	5			B
49	0	0			32	2	1			8	5	9			22	4	1			Q113	E	2	5			B
50	0	0			33	5	6			9	5	8			23	3	9		Q113		E	2	5			B
51	0	0			34	1	4			11	4	0			24	2	8			Q113	E	2	5			B
52	0	0			35	5	2			12	4	6			25	4	1		Q113		E	2	5			B
53	0	0			36	0	9			13	5	9			26	4	1			Q113	E	2	5			B
54	3	4	9		37	3	1			14	5	9			27	3	9		Q205		C	4	2			B



## • A BOARD DESCRIPTION

**Schematic diagram**  
 ← **A** board

Schematic diagrams

**H<sub>7</sub>** **J**

**P<sub>3</sub>** **P<sub>4</sub>** boards →





Ref.	Pin No.	Voltage [V]
IC900	1	5.0
Q900	E	0
	C	5.0
	B	0
Q901	E	0
	C	5.0
	B	0


















Ref.	Pin No.	Voltage [V]
IC2410	I	8.9
	O	5.0
IC2411	I	14.9
	O	8.9
Q2417	E	2.7
	B	3.4

IC2410	5V REG
IC2411	9V REG
Q2417	BUFF



Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	
IC1401	1	2.3	IC1403	12	2.9	
	2	2.2		14	1.4	
	3	2.1		16	1.4	
	4	4.3		1	3.2	
	5	4.6		2	0.3	
	6	0.4		3	1.8	
	8	5.0	IC1404	I	12.6	
	11	6.6		O	7.2	
	12	3.9		IC1406	1	4.9
	14	1.7			2	0
	21	3.6			3	0
	26	3.3			4	0
28	3.4	5	0			
29	4.4	6	0.4			
30	2.0					
31	1.9					
32	3.9					
IC1402	5	0.4				
	11	3.0				

①	②	③	④	⑤	⑥	⑦	⑧
							
1.1 Vp-p (H)	1.9 Vp-p (H)	1.6 Vp-p (H)	1.0 Vp-p (H)	1.9 Vp-p (H)	1.5 Vp-p (H)	1.6 Vp-p (H)	1.1 Vp-p (H)
⑨	⑩	⑪	⑫	⑬	⑭	⑮	
							
1.9 Vp-p (H)	1.1 Vp-p (H)	1.6 Vp-p (H)	1.6 Vp-p (H)	1.9 Vp-p (H)	1.9 Vp-p (H)	1.1 Vp-p (H)	

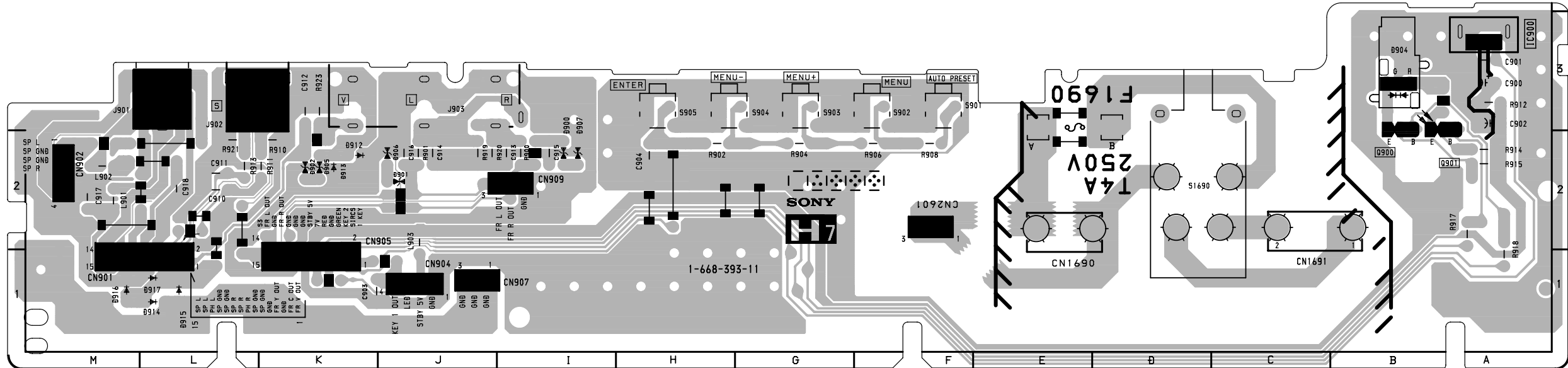
REF. NO.		REF. NO.		REF. NO.	
IC1401	3C DECODER	Q1408	INVERTER	Q1429	AMP
IC1402	DELAY LINE	Q1409	BUFF	Q1430	AMP
IC1403	SWITCH	Q1410	BUFF	Q1431	AMP
IC1404	8V REG	Q1411	BUFF	Q1432	BUFF
IC1405	A/D CONVERTER	Q1412	BUFF	Q1433	BUFF
IC1407	PI PROCESSOR	Q1413	BUFF	Q1434	BUFF
IC1408	5V REG	Q1414	BUFF	Q1435	BUFF
IC1409	5V REG	Q1415	BUFF	Q1436	BUFF
IC1411	D/A CONVERTER	Q1416	COMPARATOR	Q1437	BUFF
IC1412	SWITCH	Q1418	R BUFF	Q1438	BUFF
IC1413	D/A CONVERTER	Q1419	BUFF	Q1439	BUFF
IC1414	SWITCH	Q1421	Y BUFF	Q1440	BUFF
Q1401	AMP	Q1422	G BUFF	Q1441	AMP
Q1402	AMP	Q1423	AMP	Q1442	BUFF
Q1403	BUFF	Q1424	B BUFF	Q1462	BUFF
Q1404	BUFF	Q1425	(B-Y) BUFF	Q1463	BUFF
Q1405	BUFF	Q1426	AMP	Q1464	BUFF
Q1406	INVERTER	Q1427	AMP		
Q1407	BUFF	Q1428	(R-Y) BUFF		

Ref No.	KV-EP2FM31	KV-EP2FM61	KV-EP2FM80	KV-EP2FM96	KV-EP2FM91
C1478	1 16V F-CHIP	1 16V F-CHIP	NOT USED	NOT USED	1 16V F-CHIP
CN403	5P WHT -S-MICRO	5P WHT -S-MICRO	NOT USED	NOT USED	5P WHT -S-MICRO
C1418	25A1162	25A1162	NOT USED	NOT USED	25A1162
C1419	25C2712	25C2712	NOT USED	NOT USED	25C2712
C1421	25C2712	25C2712	NOT USED	NOT USED	25C2712
C1422	25A1162	25A1162	NOT USED	NOT USED	25A1162
C1423	25C2712	25C2712	NOT USED	NOT USED	25C2712
C1424	25A1162	25A1162	NOT USED	NOT USED	25A1162
C1425	25C2712	25C2712	NOT USED	NOT USED	25C2712
C1426	25C2712	25C2712	NOT USED	NOT USED	25C2712
C1428	25C2712	25C2712	NOT USED	NOT USED	25C2712
C1429	25C2712	25C2712	NOT USED	NOT USED	25C2712
C1422	390 -CHIP	390 -CHIP	NOT USED	NOT USED	390 -CHIP
R1442	180 -CHIP	180 -CHIP	NOT USED	NOT USED	180 -CHIP
R1443	2.7K -CHIP	2.7K -CHIP	NOT USED	NOT USED	2.7K -CHIP
R1465	820 -CHIP	820 -CHIP	NOT USED	NOT USED	820 -CHIP
R1466	2.7K -CHIP	2.7K -CHIP	NOT USED	NOT USED	2.7K -CHIP
R1467	2.7K -CHIP	2.7K -CHIP	NOT USED	NOT USED	2.7K -CHIP
R1468	1K -CHIP	1K -CHIP	NOT USED	NOT USED	1K -CHIP
R1469	1K -CHIP	1K -CHIP	NOT USED	NOT USED	1K -CHIP
R1470	220K -CHIP	220K -CHIP	NOT USED	NOT USED	220K -CHIP
R1471	150K -CHIP	150K -CHIP	NOT USED	NOT USED	150K -CHIP
R1472	220 -CHIP	220 -CHIP	NOT USED	NOT USED	220 -CHIP
R1473	220 -CHIP	220 -CHIP	NOT USED	NOT USED	220 -CHIP
R1474	220 -CHIP	220 -CHIP	NOT USED	NOT USED	220 -CHIP
R1485	2.7K -CHIP	2.7K -CHIP	NOT USED	NOT USED	2.7K -CHIP
R1491	1K -CHIP	1K -CHIP	NOT USED	NOT USED	1K -CHIP
R1492	1K -CHIP	1K -CHIP	NOT USED	NOT USED	1K -CHIP
R1493	1K -CHIP	1K -CHIP	NOT USED	NOT USED	1K -CHIP
R1494	2.7K -CHIP	2.7K -CHIP	NOT USED	NOT USED	2.7K -CHIP
R1496	1K -CHIP	1K -CHIP	NOT USED	NOT USED	1K -CHIP
R1497	1K -CHIP	1K -CHIP	NOT USED	NOT USED	1K -CHIP
R1498	1K -CHIP	1K -CHIP	NOT USED	NOT USED	1K -CHIP
R1499	1K -CHIP	1K -CHIP	NOT USED	NOT USED	1K -CHIP
R1629	2.7K -CHIP	2.7K -CHIP	NOT USED	NOT USED	2.7K -CHIP
R1630	1K -CHIP	1K -CHIP	NOT USED	NOT USED	1K -CHIP

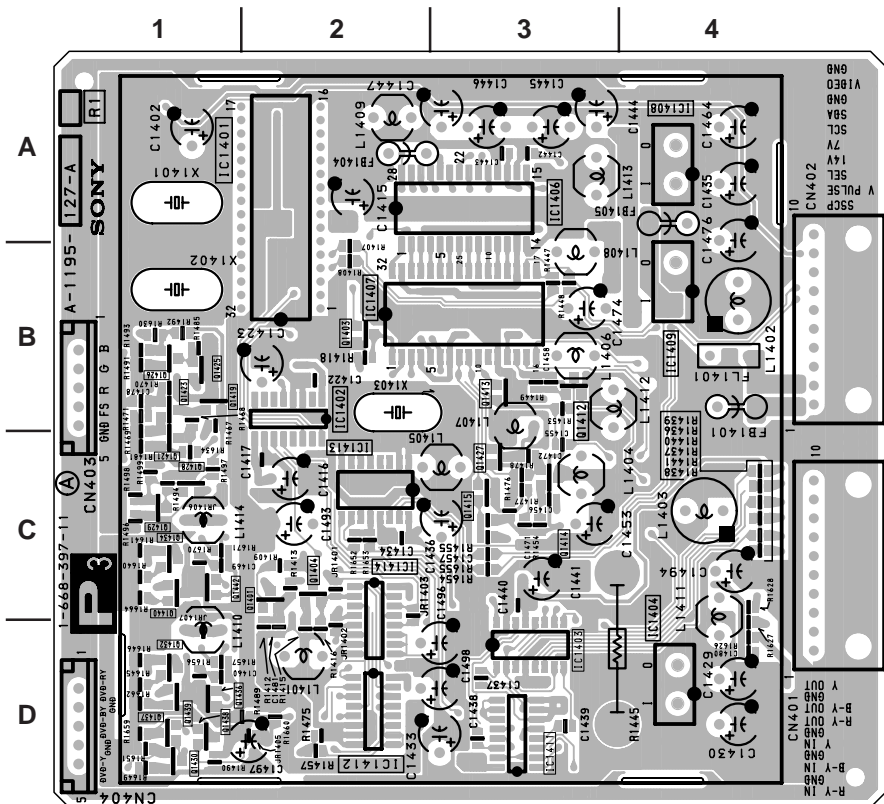
P<sub>3</sub>

[ PIP PROCESSOR ]

— H7 BOARD —



— P3 BOARD (Component Side) —

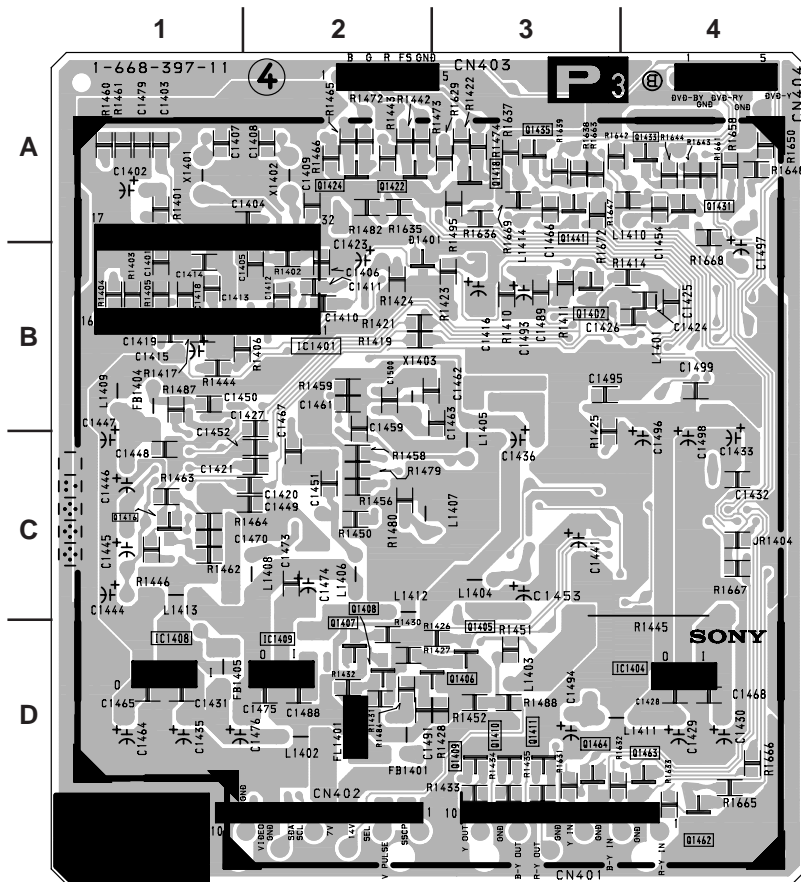


• P3 BOARD SEMICONDUCTOR LOCATION

IC	(Conductor Side) (Component Side)	
	(Conductor Side)	(Component Side)
IC1401	B-1	②
IC1402	B-3	①
IC1403	C-1	②
IC1404	D-4	①
IC1406	C-4	②
IC1407	B-3	①
IC1408	D-1	②
IC1409	D-2	①
IC1411	C-1	②
IC1412	B-1	①
IC1413	B-3	②
IC1414	B-2	①
TRANSISTOR		
	(Conductor Side)	(Component Side)
	(Conductor Side)	(Component Side)
Q1401	B-2	②
Q1402	B-3	①
Q1403	B-3	②
Q1404	B-2	①
Q1405	D-3	①
Q1406	D-3	②
Q1407	D-2	①
Q1408	D-2	②
Q1409	D-3	①
Q1410	D-3	②
Q1411	D-3	①
Q1412	C-3	②
Q1413	C-3	①
Q1414	C-2	②
Q1415	C-2	①
Q1416	C-1	②
Q1418	A-3	①
Q1419	A-3	②
Q1421	A-2	①
Q1422	A-2	②
Q1423	A-3	①
Q1424	A-2	②
Q1425	A-3	①
Q1426	A-3	②
Q1427	C-2	①
Q1428	A-2	②
Q1429	A-2	①
Q1430	A-1	②
Q1431	A-4	①
Q1432	A-1	②
Q1433	A-4	①
Q1434	A-2	②
Q1435	A-4	①
Q1436	A-3	②
Q1437	A-1	①
Q1438	A-1	②
Q1439	A-1	①
Q1440	A-2	②
Q1441	A-3	①
Q1442	B-1	②
Q1462	D-4	①
Q1463	D-4	②
Q1464	D-3	①
CRYSTAL		
	(Conductor Side)	(Component Side)
	(Conductor Side)	(Component Side)
X1401	A-1	①
X1402	A-2	②
X1403	B-2	①

※: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 55)

— P3 BOARD (Conductor Side) —



- Pattern from the side which enables seeing.
- Pattern of the rear side.

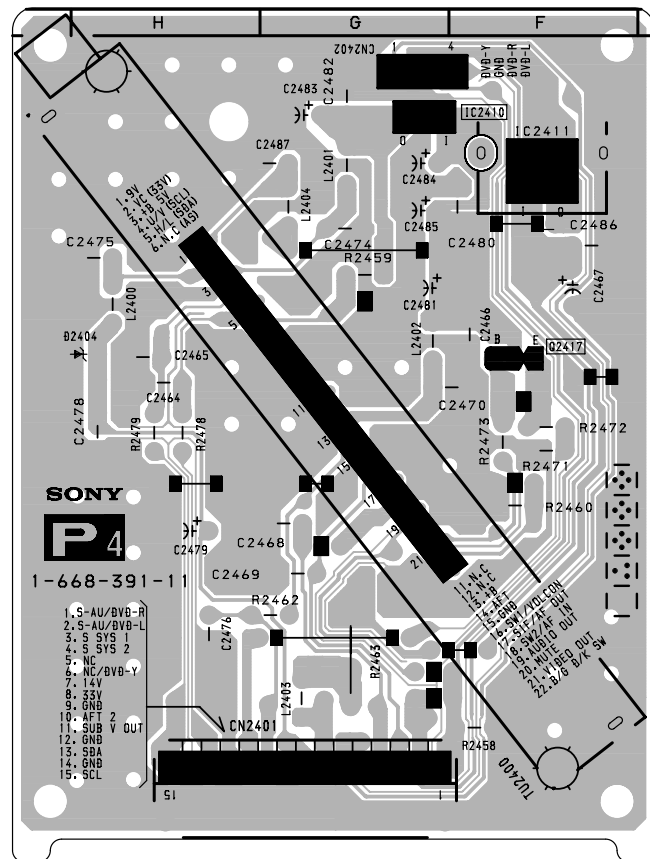
P<sub>4</sub>

[ SUB TUNER ]

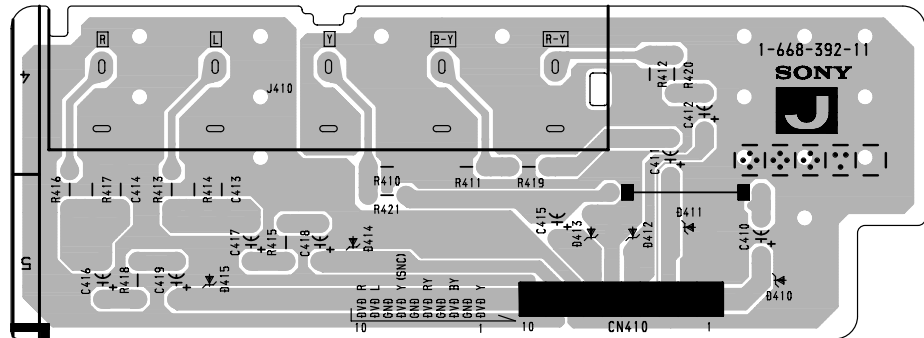
J

[ COMPONENT VIDEO IN ]

— P4 BOARD —



— J BOARD —



- Pattern from the side which enables seeing.
- Pattern of the rear side.

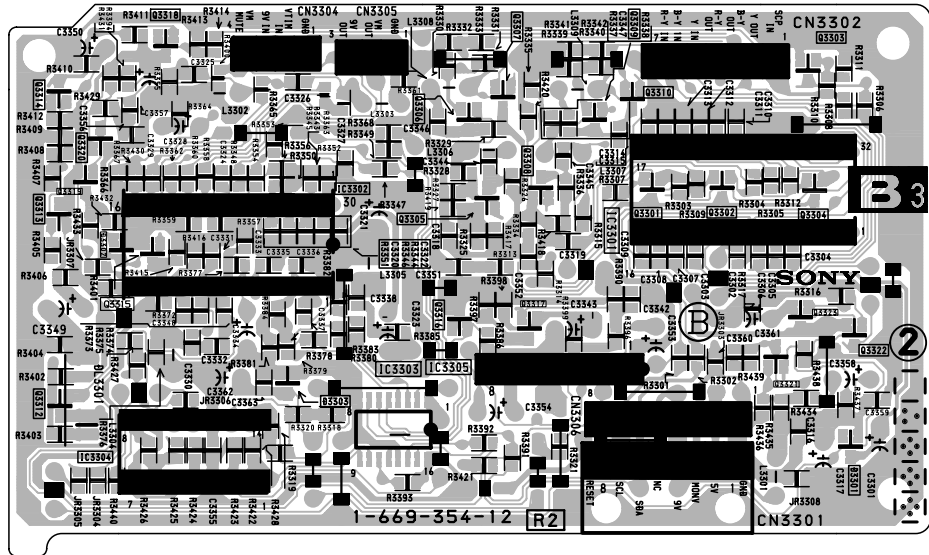


**Terminal name of semiconductors  
in silk screen printed circuit (\*)**

Ref.	*
Q3301, Q3302, Q3304-Q3310, Q3312-Q3320	①
D3301, D3302	④

**\*: Refer to Terminal name of semiconductors in silk screen printed circuit (see page 55)**

— B3 BOARD —



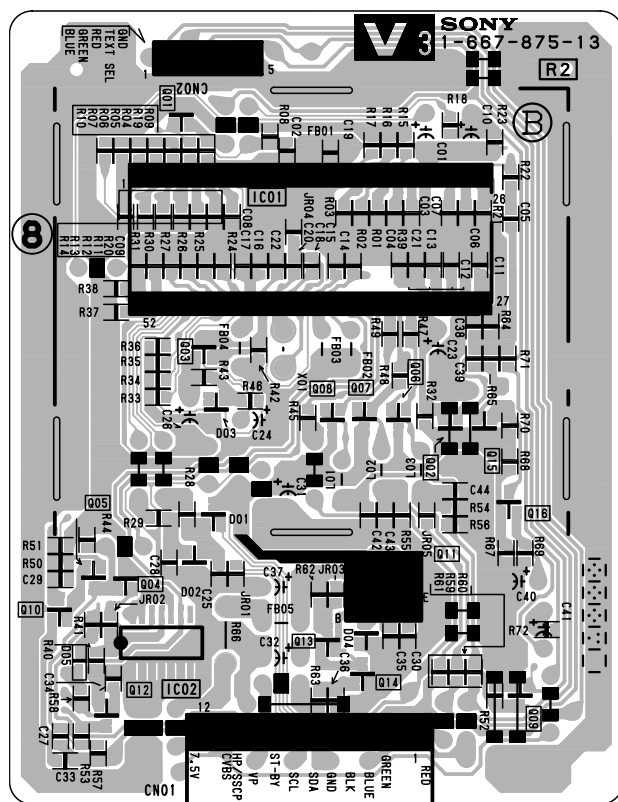
### V3 BOARD

**Terminal name of semiconductors  
in silk screen printed circuit (\*)**

Ref.	*
Q01, Q03-Q10, Q12	①
D02	⑩
D03, D04	④
D05	③

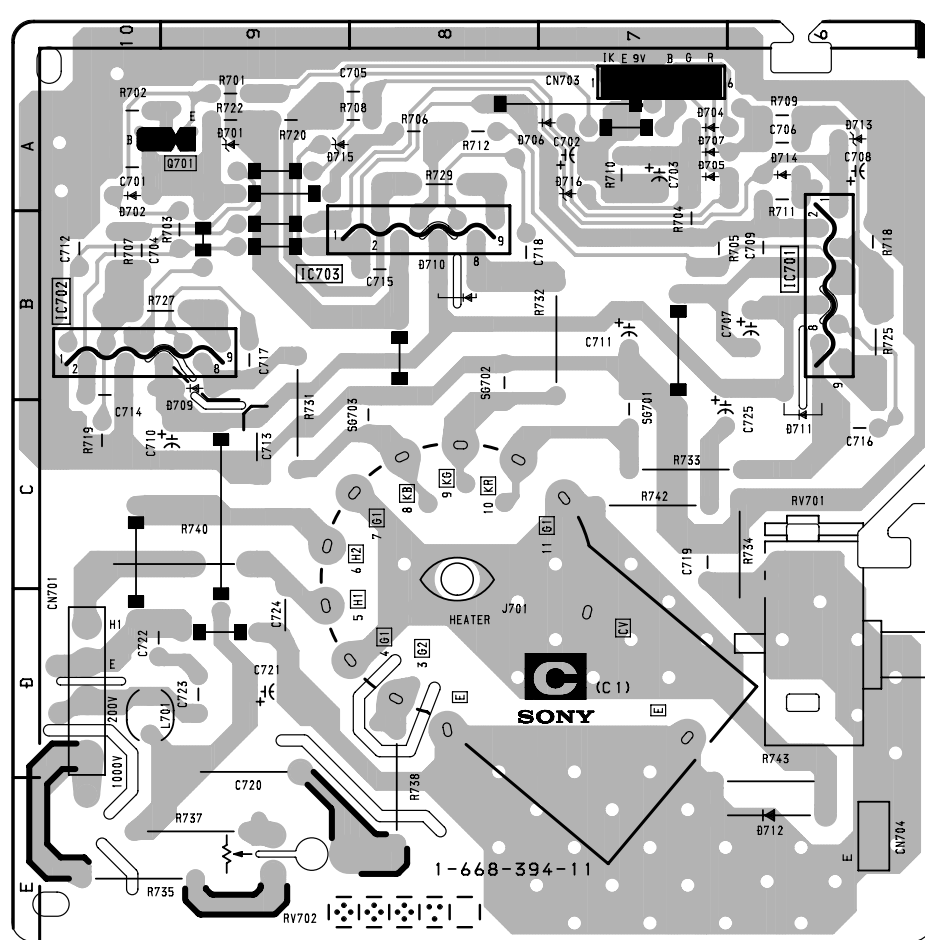
**\*: Refer to Terminal name of  
semiconductors in silk screen  
printed circuit (see page 55)**

— V3 BOARD —

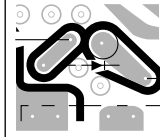
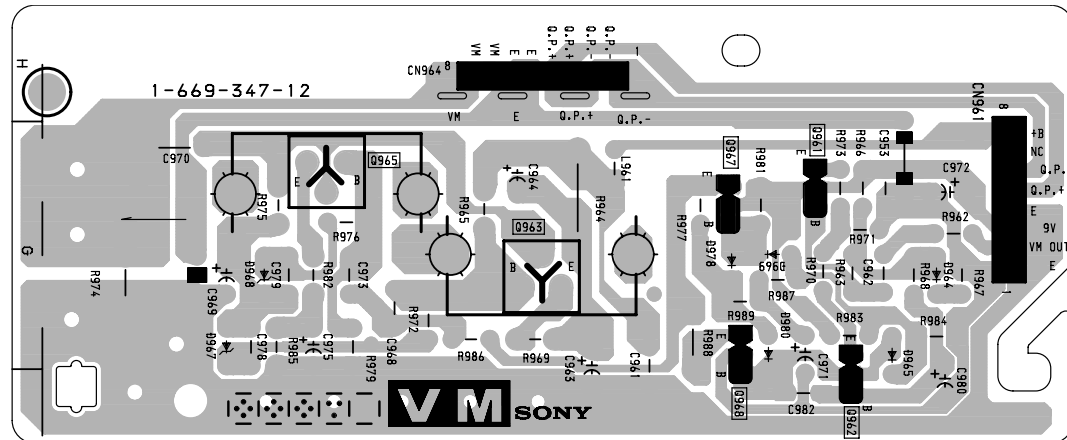


**C<sub>1</sub>** [RGB OUTPUT]

— C1 BOARD —



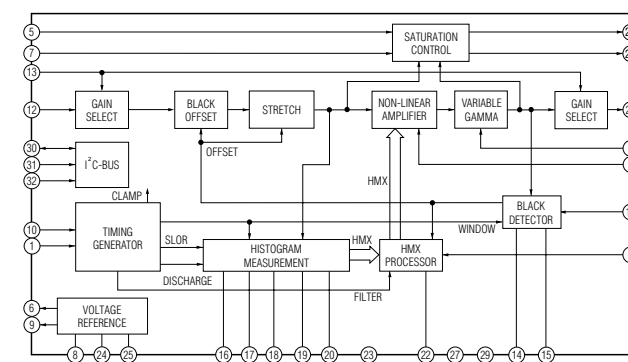
— VM BOARD —



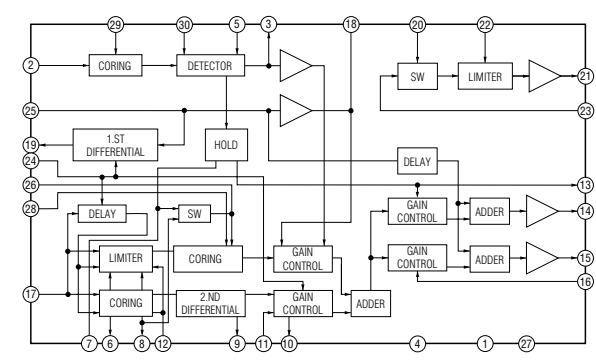
**NOTE:**

The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

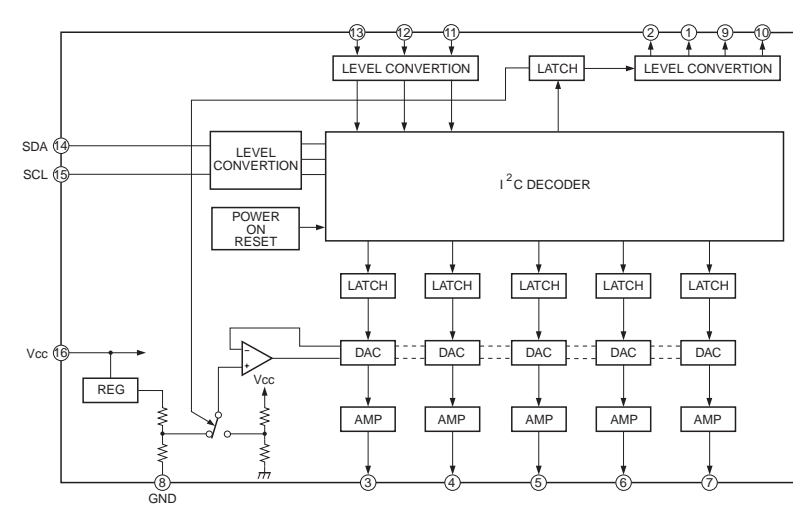
- B3 BOARD IC3301 TDA9170



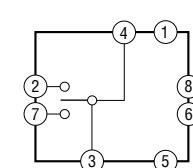
- B3 BOARD IC3302 AN5342K

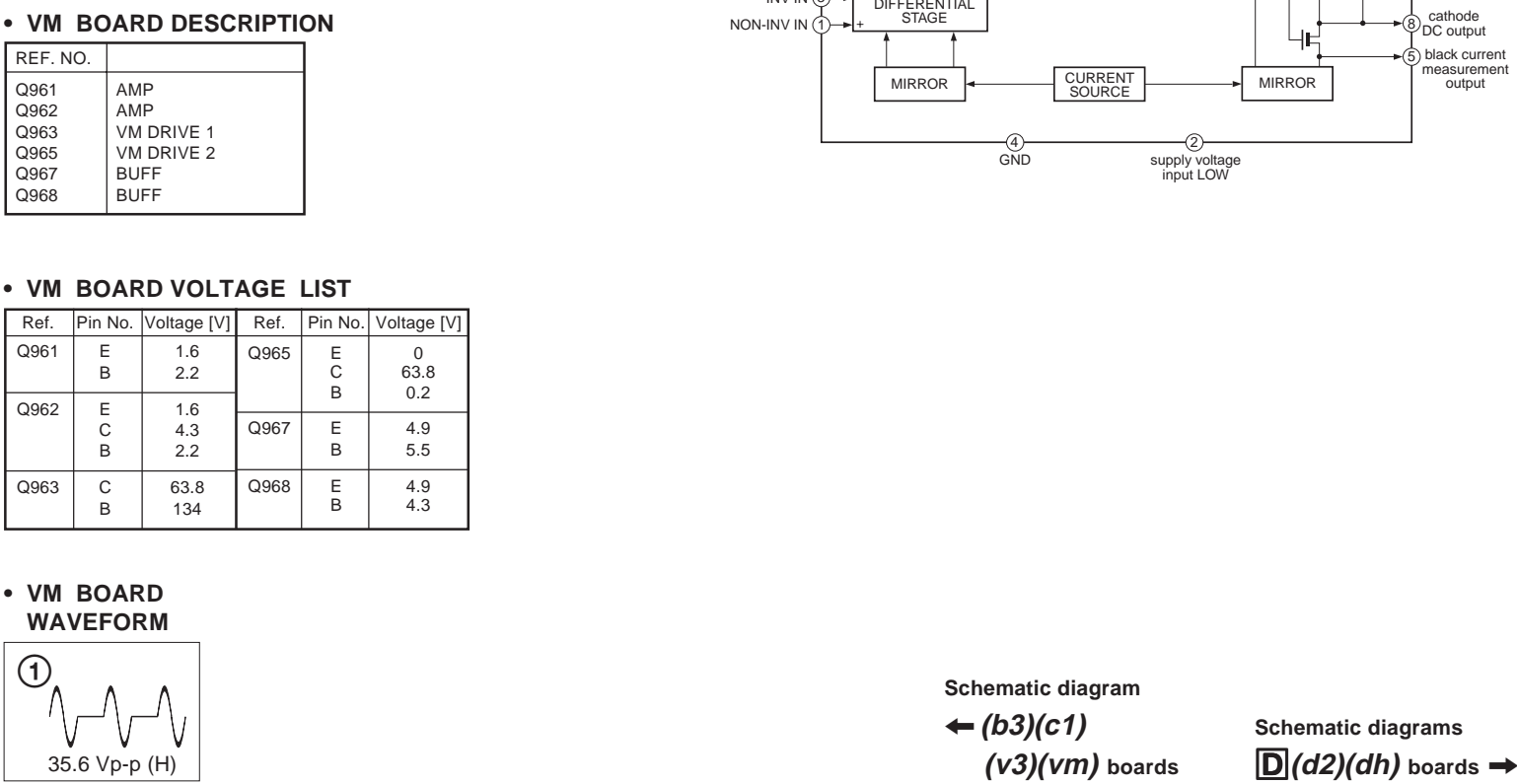
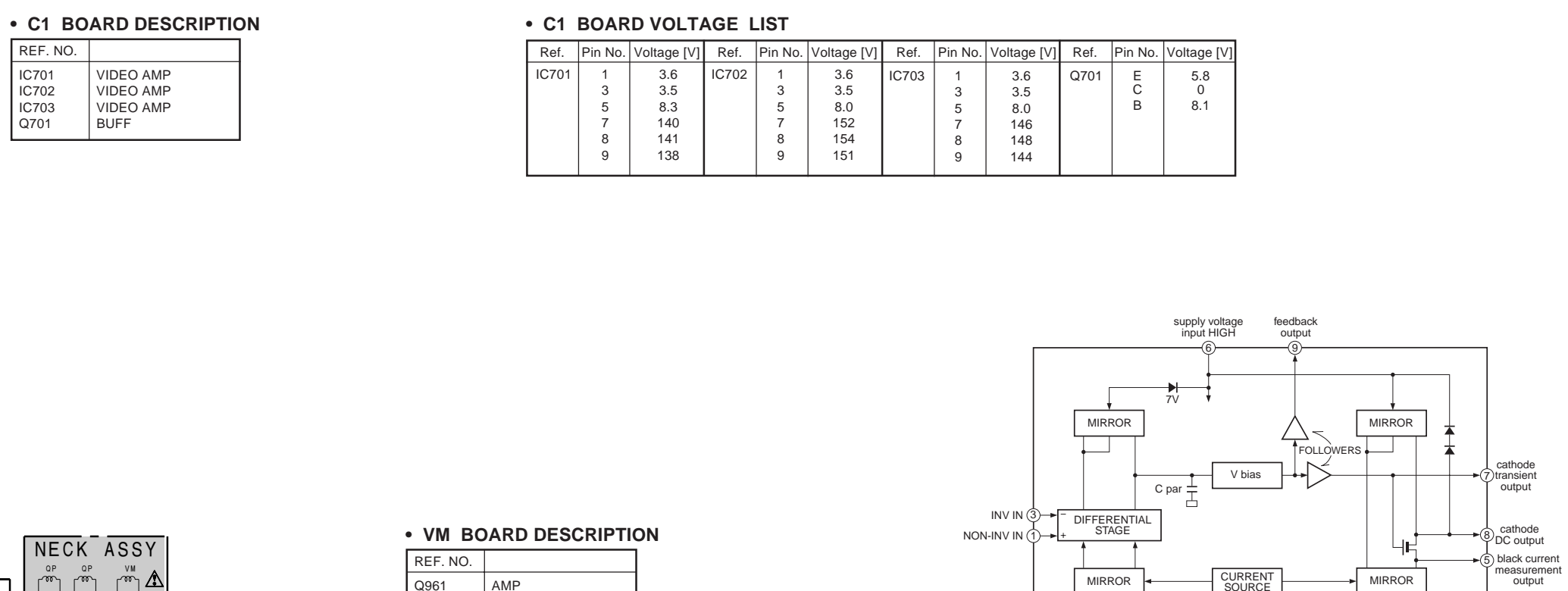
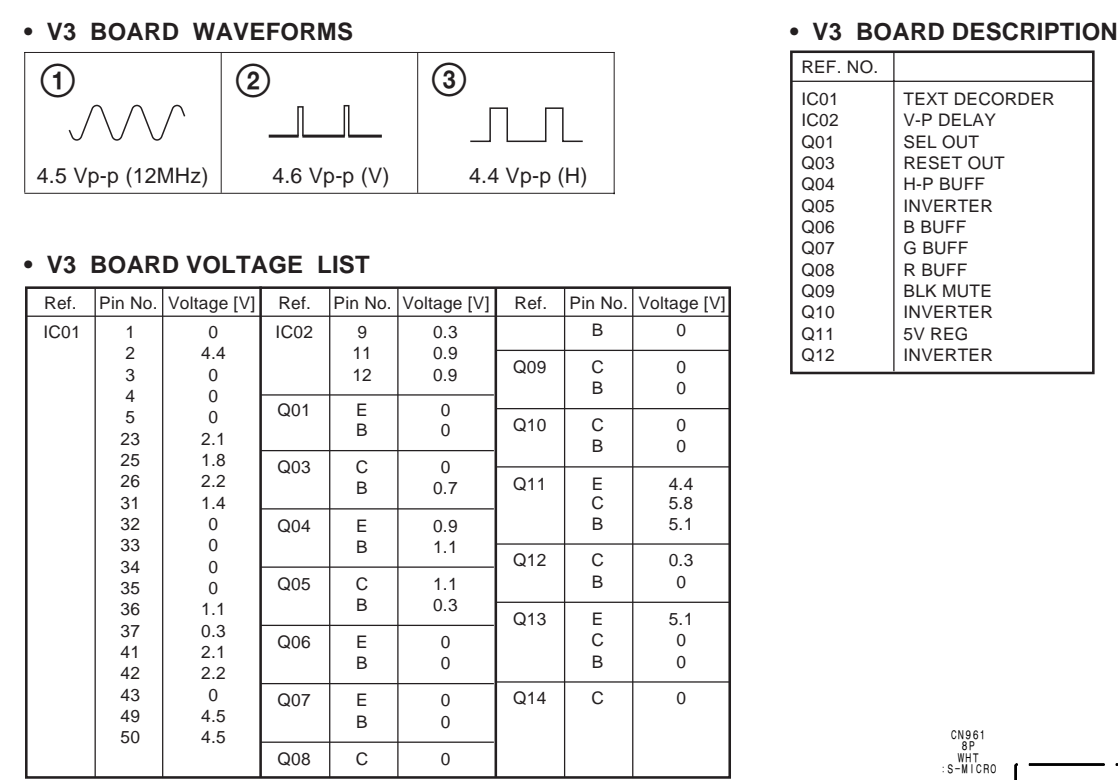
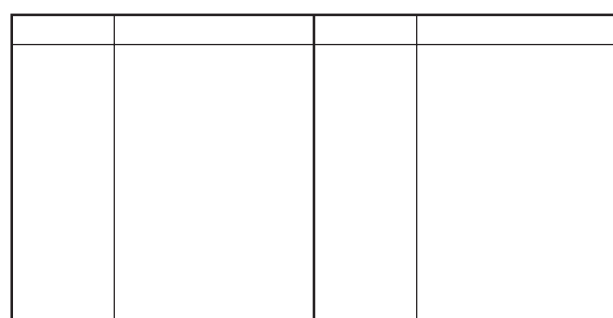
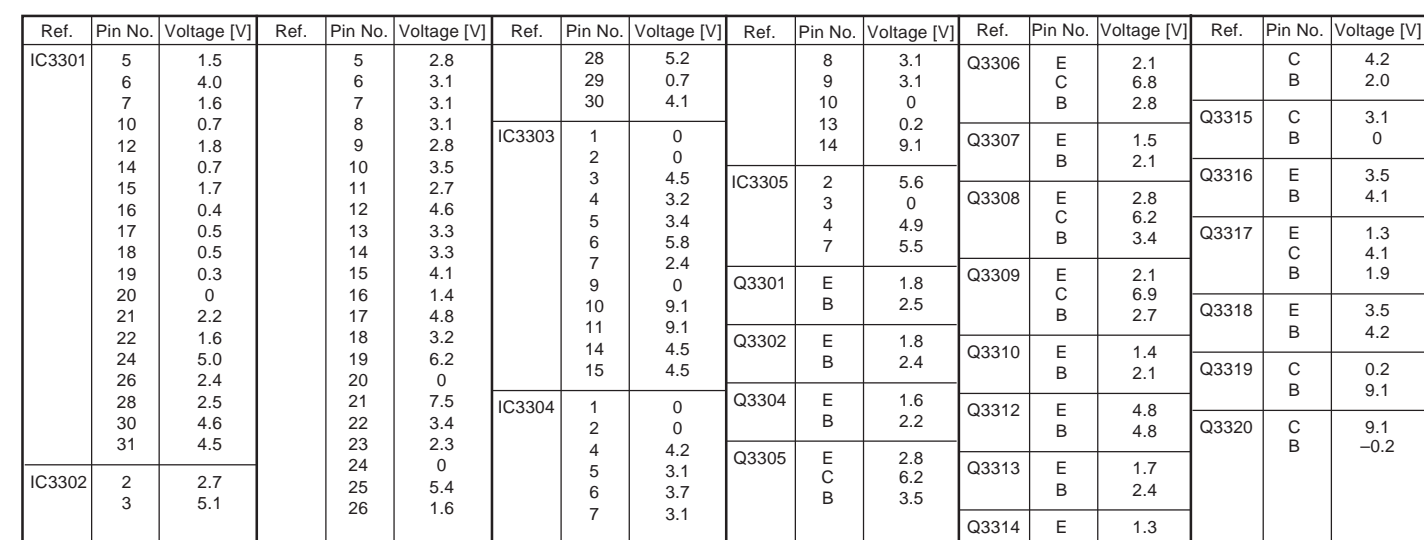


- B3 BOARD IC3303 CXA1315M

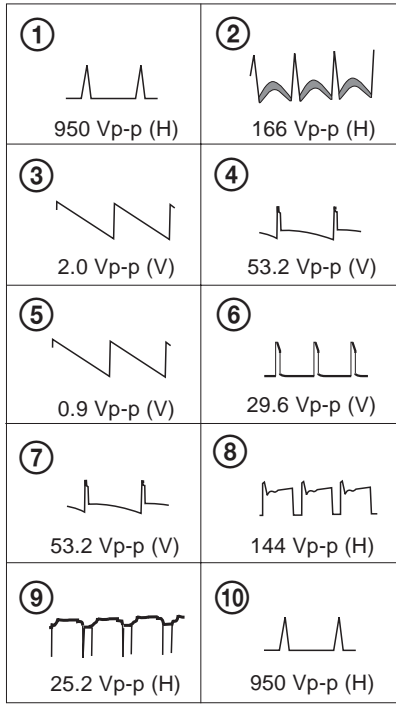
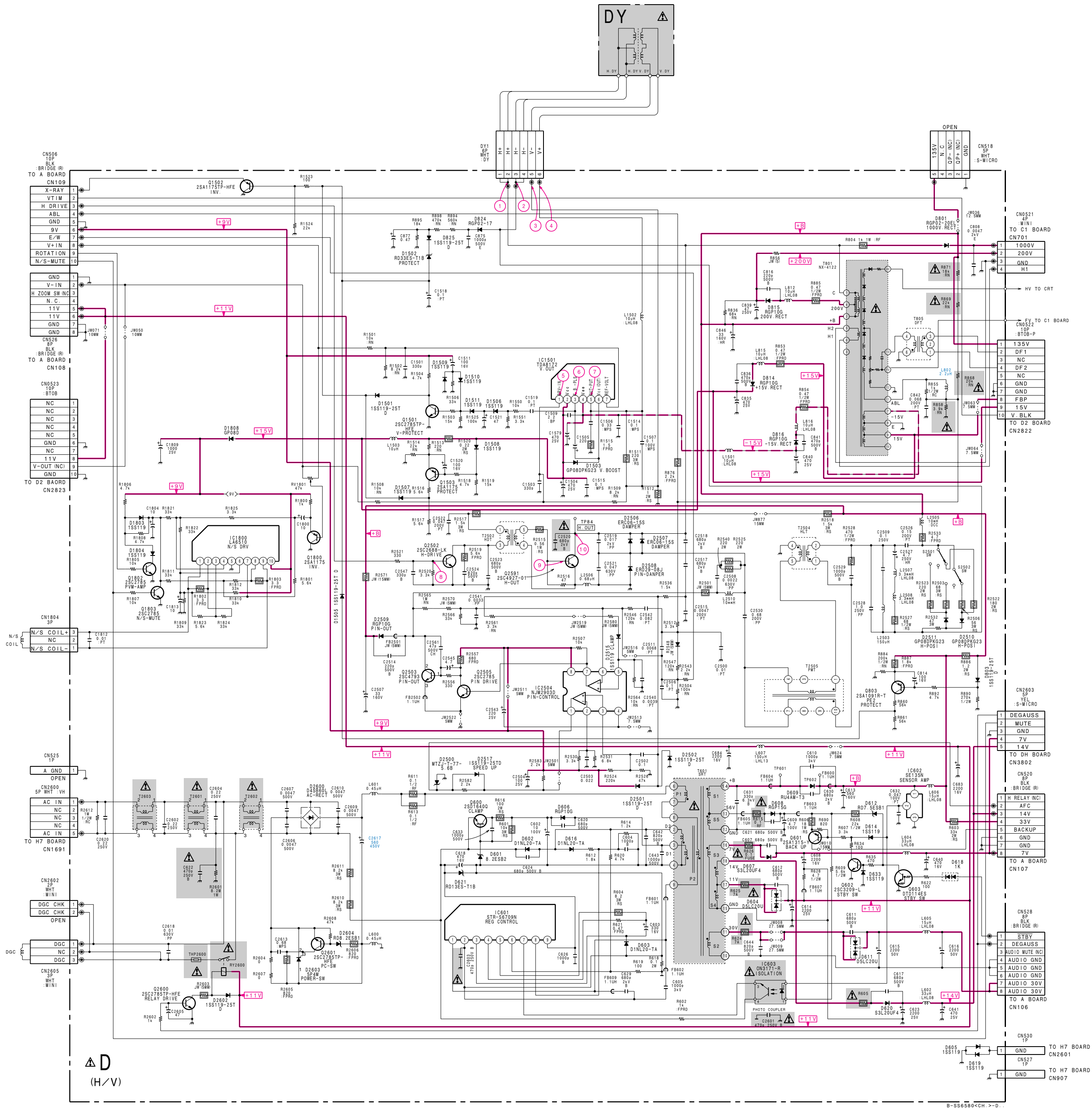


- B3 BOARD IC3305 LA7016

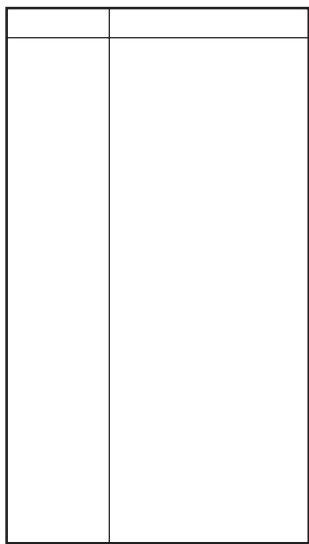




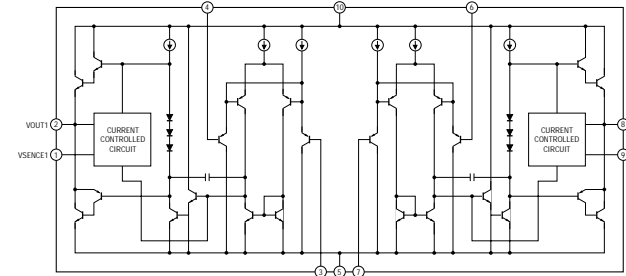




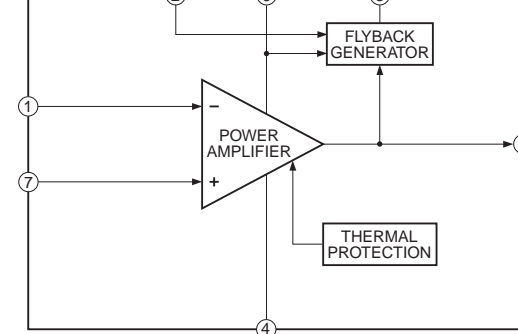
Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC601	1	289	Q803	B	4.1
	2	0		C	0
	3	0		B	134
	4	0.8		C	0
	5	1.3		B	0.6
	6	0		E	0.6
	7	0.2		B	0
	8	1.6		C	0.2
	9	8.4		B	12.5
IC602	2	64.7	Q1503	E	13.0
	1	65.6		C	0.2
	2	64.6		B	12.5
	3	0.2		E	4.1
IC603	1	65.6	Q1800	E	4.1
	2	64.6		B	3.5
	3	0.2		C	0.3
	4	8.2		B	6.4
IC1501	1	1.3	Q1802	C	4.1
	3	-13.5		B	0.3
	5	0.4		C	6.4
	7	1.3		B	0
IC1800	1	6.4	Q2502	C	68.6
	2	6.4		B	0
	3	6.4		C	19.3
	4	6.4		B	2.5
	6	6.4		C	2.5
	7	6.4		B	0
	8	6.3		C	-0.2
	9	6.4		B	11.3
	9	6.4		C	0
Q600	C	8.4	Q2591	C	0
	B	8.0		B	0
	C	8.2		E	-0.3
Q601	E	70.9	Q2600	C	11.3
	B	10.2		B	0
Q602	C	70.8	Q2601	E	-0.3
	B	70.8		C	-0.4
Q603	C	0			
	C	0			



#### • DH BOARD IC3805 LA6510



#### • D BOARD IC1501 TDA8172



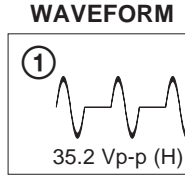
#### • D2 BOARD VOLTAGE LIST

Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC2801	1	6.1	Q2812	E	8.2
	2	6.5		C	8.2
	3	6.6		B	7.6
	5	6.6	Q2813	E	4.4
	6	6.5		C	8.1
	7	1.5		B	5.0
IC2803	I	13.2	Q2814	E	8.7
	O	9.0		C	0.8
IC2805	5	4.4	Q2815	C	3.5
	6	4.5		B	0
	7	4.5	Q2817	E	1.4
Q2802	E	2.1		B	0.8
	B	1.5	Q2818	E	-2.5
	C	0		B	1.8
Q2806	E	1.5	Q2821	E	2.1
	C	8.3		C	7.3
	B	1.5		B	1.8
Q2807	C	42.6	Q2822	C	2.1
	B	-0.2		B	8.1
	C	0	Q2823	E	1.3
Q2811	E	2.1		B	2.1
	C	7.3		B	2.1
	B	1.8		B	2.1

#### • D2 BOARD DESCRIPTION

REF. NO.	DF/DOP AMP	REF. NO.	DF OUT	REF. NO.	V PULSE
IC2801	DF/DOP AMP	Q2807	DF OUT	Q2817	V PULSE
IC2803	9V-REG	Q2811	DOP OUT	Q2818	V PULSE
IC2805	V PARA AMP	Q2812	DOP OUT	Q2821	H PULSE
Q2802	DOP DRIVE	Q2813	V PARA	Q2822	V-DC CONT
Q2806	DF DRIVE	Q2814	V PULSE	Q2823	V-DC CONT

#### • D2 BOARD WAVEFORM



#### • DH BOARD VOLTAGE LIST

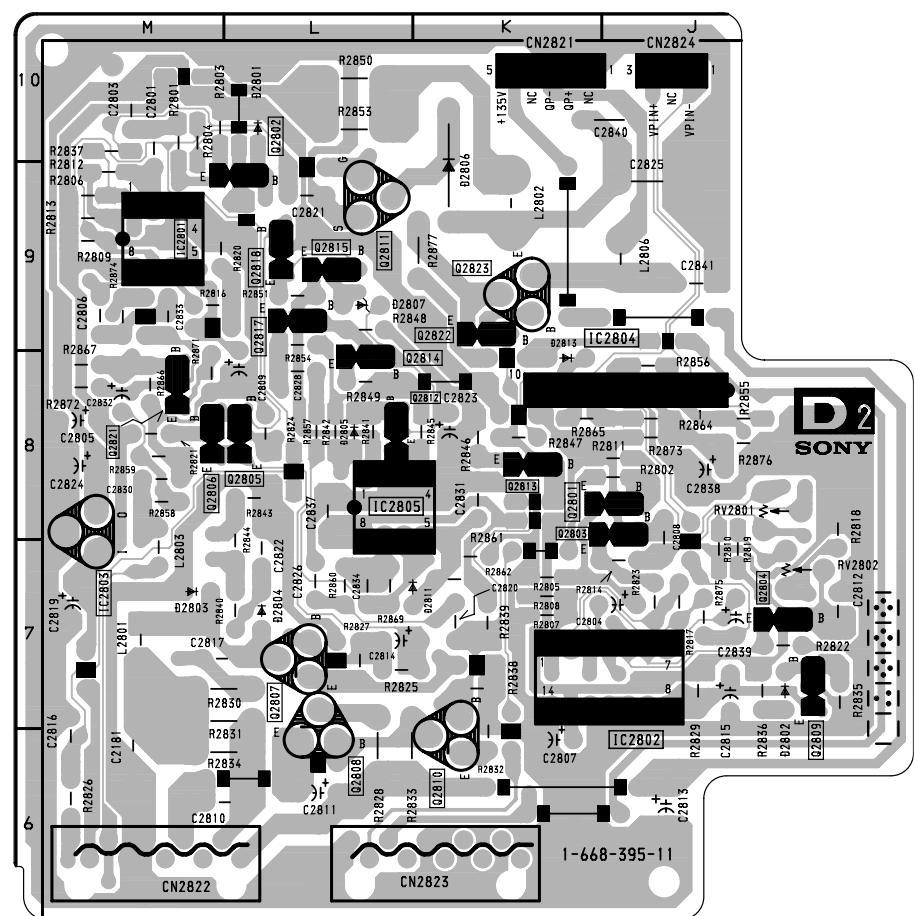
Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]
IC3805	1	2.4	Q3810	E	3.2
	2	2.7		B	2.6
	3	2.6		E	2.6
	4	2.7		B	3.2
	6	2.6		E	2.6
	7	2.6		B	3.2
	8	2.5		E	2.6
	8	2.5		B	0
IC3807	3	2.5	Q3812	E	2.6
	4	2.0		B	0
Q3809	E	2.6		B	0

#### • DH BOARD DESCRIPTION

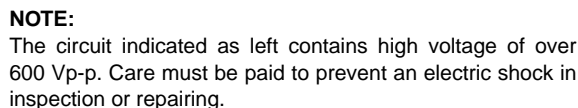
REF. NO.	N/S DRIVE
IC3805	N/S DRIVE
IC3807	SENSOR UNIT
Q3809	N/S DRIVE MUTE
Q3810	BUFF
Q3811	BUFF
Q3812	N/S DRIVE MUTE



— D2 BOARD —



IC		DIODE		D1506	F-8
IC601	C-5	D601	D-5	D1507	F-6
IC602	E-2	D602	D-4	D1508	F-7
IC603	E-5	D603	C-5	D1509	F-8
IC1501	D-8	D604	D-1	D1510	F-8
IC1502	D-8	D605	G-10	D1511	F-8
IC2504	G-6	D606	C-1	D1803	H-4
IC2504	F-5	D607	C-1	D1804	H-5
		D608	D-2	D1808	H-7
		D609	E-2	D2501	F-3
		D611	E-1	D2502	F-4
		D612	E-2	D2506	D-9
		D614	E-3	D2507	D-9
		D616	D-5	D2508	E-10
		D618	C-1	D2509	F-6
		D619	G-10	D2510	G-7
		D620	C-2	D2511	G-8
		D621	D-6	D2515	G-5
		D633	E-2	D2517	F-4
		D801	D-8	D2600	A-5
		D803	F-4	D2602	B-1
		D814	B-7	D2603	A-6
		D816	C-7	D2604	B-6
		D824	G-8		
		D825	F-6		
		D1501	F-7		
		D1502	F-6		
		D1503	E-8		
		D1505	G-4		



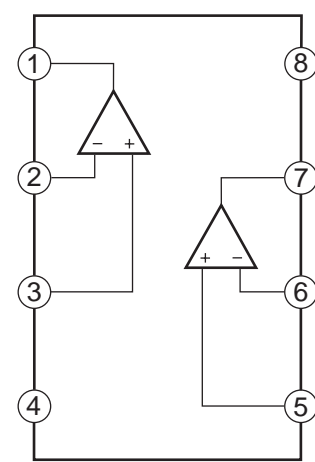


REF. NO.	
IC3001	A/D CONVERTER
IC3002	DOLBY PROCESSOR
IC3003	5V REG
IC3004	RESET
IC3005	AMP
IC3007	AD/DA CONTROL
Q3001	MUTE DRIVE
Q3002	MUTE L
Q3002	MUTE R

**WAVEFORMS**

①  
6.0 Vp-p (16.9344MHz)

②  
4.2 Vp-p (24.576MHz)




Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]					
IC3001	1	2.5	IC3002	31	5.0	IC3003	16	3.5	IC3004	45	5.0	IC3005	1	4.5					
	2	0		32	5.0		17	3.0		47	0		2	4.5					
	5	2.8		33	5.0		19	3.7		48	4.9		3	4.5					
	6	2.5		39	2.5		20	2.5		49	4.3		5	4.5					
	7	5.0		40	2.5		21	2.5		50	4.5		6	4.5					
	8	3.2		41	2.8		22	2.5		51	4.9		7	4.7					
	9	3.9		42	2.4		23	2.5		53	4.9		IC3007	1	5.0				
	12	2.1		43	3.8		24	2.5		54	5.0			2	5.0				
	13	2.5		44	2.5		26	2.5		55	4.9			9	5.0				
	14	3.0		IC3002	1		5.0	27		2.5	56			5.0	10	0			
	16	5.0						29		2.5	57			5.0	14	4.5			
	17	2.4						30		2.5	58		5.0	15	4.5				
	18	2.0						3		5.0	32		2.0	59	5.0	Q3001	C	-0.6	
	19	5.0						6		5.0	33		2.3	60	5.0		B	5.0	
	22	0						7		5.0	35		5.0	IC3003	I	9.0	Q3002	C	0
	24	5.0						8		5.0	36		5.0		O	5.0		B	-0.6
26	5.0	9	5.0			37		0	IC3004	1	5.0	Q3003	C	0					
28	0	10	5.0			39		5.0		2	GND		B	-0.6					
29	5.0	11	5.0			42		5.0		IC3004	1	5.0	Q3003	C	0				
30	0	15	5.0	43	4.9	2	GND	B	-0.6										
							44	4.9											



S1 BOARD VOLTAGE LIST																												
Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]	Ref.	Pin No.	Voltage [V]											
IC2201	1	0.2	IC2208	15	4.5	IC2209	10	5.7	IC2210	20	5.7	IC2211	30	5.7	IC2212	3	7.0											
	2	0.2		IC2213	11		5.7	IC2214		21	5.7		IC2215	5		7.0												
	3	0.5			IC2216		12			5.7	IC2217			6		7.0												
	4	4.6					IC2218			13				5.7		IC2219	7	7.0										
	5	0.4								IC2220				14			5.7	IC2221	E	4.7								
	6	0.4												IC2222			15		5.7	IC2223	C	11.5						
	7	8.6															IC2224		16		6.4	IC2225	B	5.2				
	9	3.7																	IC2226		17		6.0	IC2227	S	5.7		
	10	8.3																			IC2228		18		5.7	IC2229	D	5.2
	14	4.5																					IC2230		19		5.7	IC2231
		IC2232	20			5.7			IC2233																			
			IC2234	21		5.7		IC2235																				
				IC2236	22	5.7					IC2237																	
					IC2238	23	5.7					IC2239																
						IC2240	24			5.7			IC2241															
							IC2242			25				5.7	IC2243													
										IC2244				26		5.7	IC2245											
														IC2246		27		5.7	IC2247									
																IC2248		28		5.7	IC2249							
																		IC2250		29		5.7	IC2251					
		IC2252																				IC2253						
			IC2254																	IC2255								
				IC2256							IC2257																	
					IC2258							IC2259																
						IC2260							IC2261															
							IC2262								IC2263													
								IC2264									IC2265											
									IC2266										IC2267									
										IC2268											IC2269							
														IC2270									IC2271					
		IC2272																				IC2273						
			IC2274																	IC2275								
				IC2276														IC2277										
					IC2278											IC2279												
						IC2280							IC2281															
							IC2282								IC2283													
								IC2284									IC2285											
									IC2286										IC2287									
										IC2288											IC2289							
											IC2290												IC2291					
		IC2292																				IC2293						
			IC2294																	IC2295								
				IC2296														IC2297										
					IC2298											IC2299												
						IC2300								IC2301														
							IC2302								IC2303													
								IC2304									IC2305											
									IC2306										IC2307									
										IC2308											IC2309							
											IC2310												IC2311					
		IC2312																				IC2313						
			IC2314																	IC2315								
				IC2316														IC2317										
					IC2318											IC2319												
						IC2320								IC2321														
							IC2322								IC2323													
								IC2324									IC2325											
									IC2326										IC2327									
										IC2328											IC2329							

[illegible]

REF. NO.	
IC1330	SOUND DECODER
IC1331	5V REG
Q1330	BUFF
Q1331	BUFF
Q1332	BUFF
Q1333	AMP
Q1334	BUFF
Q1335	BUFF

①   
3.2 Vp-p (18.432MHz)

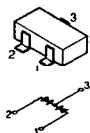




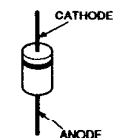
## 6-5. SEMICONDUCTORS

### DIODE

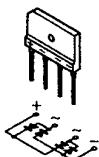
DAN202K



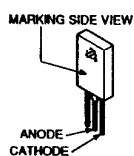
D1NL20  
EGP20G  
EL-1Z  
GP08D  
RGP02-17EL-6433  
RGP02-20EL-6394



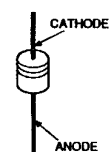
D4SB60L



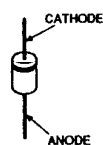
D5LC20U



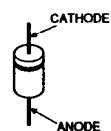
RD33ES-B2  
RD39ES-B2  
RD4.7ES-B2  
RD5.1ES-B1  
RD5.1ES-B2  
RD5.6ES-B1  
RD5.6ES-B2  
RD7.5ES-B1  
RD8.2ES-B2  
RD9.1ES-B  
RD9.1ES-L



ERC06-15S  
RU4AM-T3  
S3L20UF4



ERD29-08J



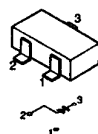
MC932



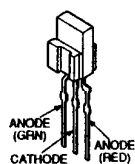
ON3171-R



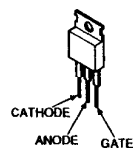
RD6.8M-B  
RD8.2M-B1



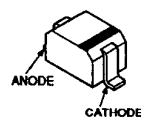
SPB-26MVWF



1SS355



5P6M



### TRANSISTOR

DTA144EK  
DTC114EK  
DTC144EK  
2SA1162-G  
2SC2712-YG



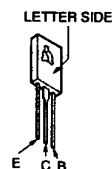
2SB733-34  
2SC2958  
2SD773-34



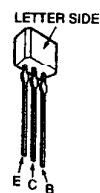
DTC144ES



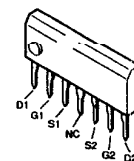
2SC2611  
2SC2688-LK  
2SC3601-E



DTD114ES  
2SA1175-HFE  
2SC2785-HFE



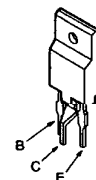
2SC4927-01



2SA1091-O  
2SC2551-O



2SD1640Q, R



2SA1315-Y



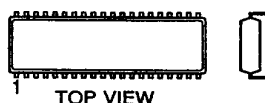
2SA1837  
2SC4793  
2SD2394-F



**KV-J29MF1/J29MN2**  
**KV-J29SN21/J29SZ2**  
**RM-873**

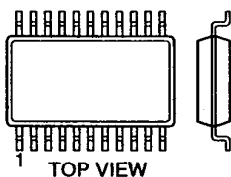
**IC**

**CXA1855S (48PIN)**  
**CXA2050S (64PIN)**  
**CXP85332A-073S (64PIN)**  
**M5216P (8PIN)**  
**ST24C04CB1 (8PIN)**  
**TDA4665T (16PIN)**  
**TDA8395T (20PIN)**  
**TDA8424 (20PIN)**  
**μPC4558C (8PIN)**



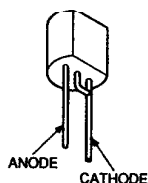
Dual In-line Package  
Pin 6 ~ 98

**CXA1315M (16PIN)**  
**μPC4558G2 (8PIN)**



Small Outline L-leaded Package  
Pin 8 ~ 98

**μPC574J**



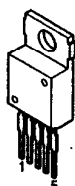
**L78LR05D-MA**



**PQ09RF2**

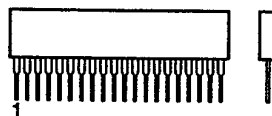


**MC14052BF**



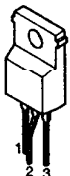
**SBX1981-11 (3PIN)**

**MARKING SIDE VIEW**



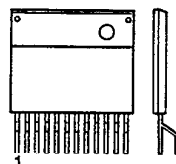
Single In-line Package  
Pin 6 ~ 99

**SE-135N**



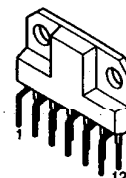
**STR-S6708 (9PIN)**  
**STR-S6709 (9PIN)**

**MARKING SIDE VIEW**



Zig-zag In-line Package  
Pin 6 ~ 99

**TA8200AH**



**TDA8172**





## SECTION 7 EXPLODED VIEWS

**KV-J29MF1/J29MN2**  
**KV-J29SN21/J29SZ2**  
RM-873

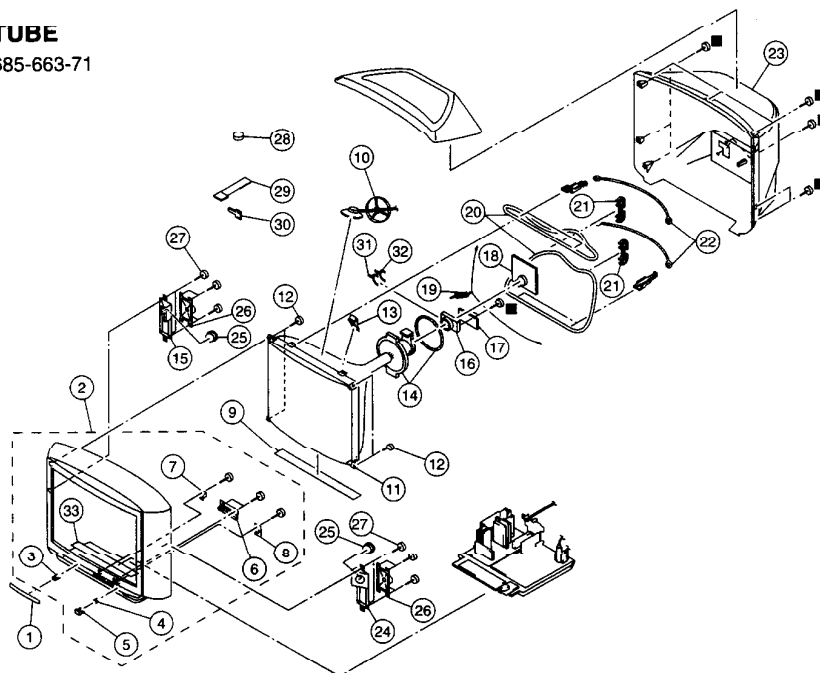
### NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

### 7-1. PICTURE TUBE

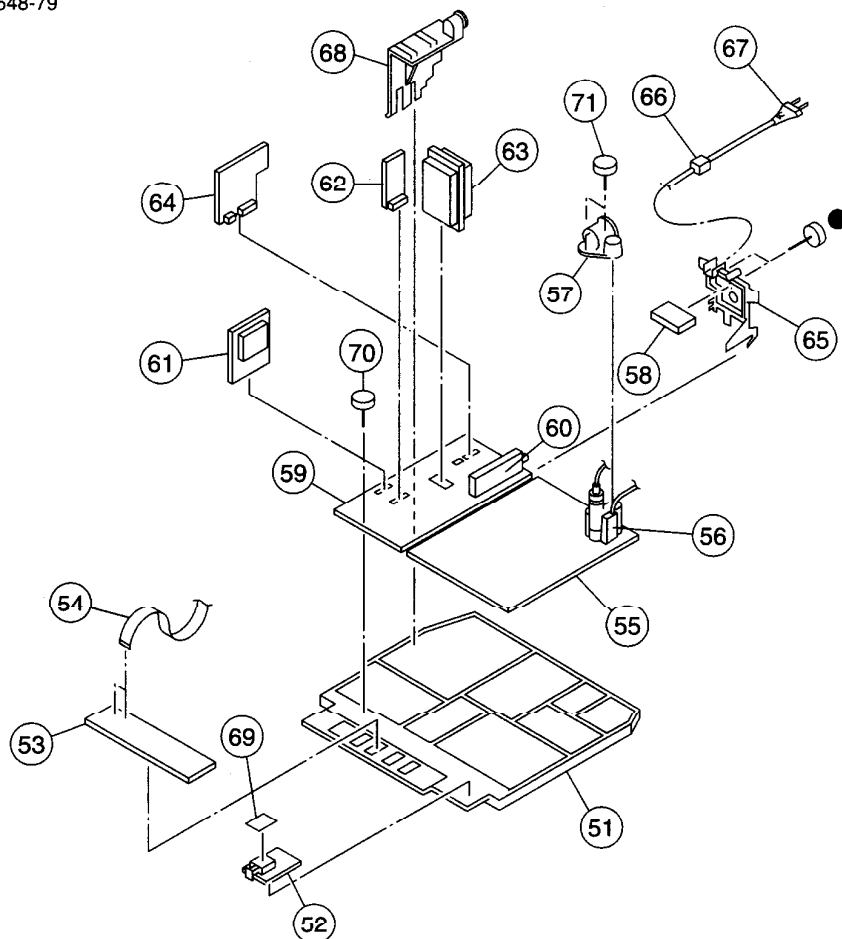
■: BVTP 4 × 16 7-685-663-71



REF. NO.	PART NO.	DESCRIPTION	REMARK	REF. NO.	PART NO.	DESCRIPTION	REMARK
1	4-054-485-21	DOOR, CONTROL (KV-J29MF1)		16	1-452-762-31	NECK ASSEMBLY NA294	
	4-054-485-11	DOOR, CONTROL (KV-J29MN2)		17	* A-1342-329-A	MOUNTED PCB (VAR), VM (KV-J29MF1/MN2)	
	4-054-485-51	DOOR, CONTROL (KV-J29SN21)			* A-1342-332-A	VM MOUNTED PCB (VAR) (KV-J29SN21/SZ2)	
	4-054-485-41	DOOR, CONTROL (KV-J29SZ2)		18	* A-1331-649-A	MOUNTED PCB (VAR), C2 (KV-J29MF1/MN2)	
2	X-4033-997-1	BEZNET ASSY (KV-J29MF1)	3-8		* A-1331-604-A	C2 MOUNTED PCB (VAR) (KV-J29SN21/SZ2)	
	X-4033-928-1	BEZNET ASSY (KV-J29MN2)	3-8	19	4-369-318-41	SPRING, TENSION (KV-J29MF1/MN2)	
	X-4034-275-1	BEZNET ASSY (KV-J29SN21/SZ2)	3-8,33		4-369-318-61	SPRING, TENSION (KV-J29SN21/SZ2)	
3	4-047-464-01	CATCHER, PUSH		20	$\Delta$ 1-403-672-31	COIL, DEMAGNETIZATION (KV-J29MF1/MN2)	
4	4-036-405-11	SPRING, COMPRESSION			$\Delta$ 1-403-672-11	COIL, DEMAGNETIZATION (KV-J29SN21/SZ2)	
5	4-054-486-01	BUTTON, POWER		21	* 4-054-297-11	HOLDER, DEGAUSSING COIL (KV-J29MF1/MN2)	
6	4-054-487-01	BUTTON, CONTROL			* 4-054-297-01	HOLDER, DGC (KV-J29SN21/SZ2)	
7	* 4-054-488-01	GUIDE, LIGHT (R)		22	* 4-043-827-11	BAND, DEGAUSSING COIL (KV-J29MF1/MN2)	
8	* 4-054-489-01	GUIDE, LIGHT (LED)			1-900-700-10	DGC BAND (KV-J29SN21/SZ2)	
9	4-385-725-51	SHEET, BLOTING (KV-J29MF1/MN2)		23	4-054-484-01	COVER, REAR	
10	* 3-704-372-11	HOLDER, HV CABLE		24	* X-4033-931-1	BRACKET (R) ASSY, SP	
11	$\Delta$ 8-733-869-05	PICTURE TUBE (M68KZT71X) (KV-J29MF1/MN2)		25	1-505-489-11	SPEAKER (5CM)	
	$\Delta$ 8-733-868-05	PICTURE TUBE (M68KZT71X) (KV-J29SN21/SZ2)		26	1-505-503-11	SPEAKER (15X6.5CM)	
12	4-046-765-01	SCREW, TAPPING		27	4-302-404-03	SCREW (WASHER HEAD) (+P 4X16)	
13	4-046-600-01	SPACER, DY (KV-J29MF1/MN2)		28	1-452-032-00	MAGNET, DISC	
	4-046-600-11	SPACER, DY (KV-J29SN21/SZ2)		29	4-051-134-21	PIECE B(120), CONV. CORRECT	
14	$\Delta$ 8-451-467-31	DEFLECTION YOKE (Y29GXA2-S) (KV-J29MF1/MN2)		30	4-034-272-01	PLATE, CORRECTION, TLV	
	$\Delta$ 8-451-467-21	DEFLECTION YOKE (Y29GX2T) (KV-J29SN21/SZ2)			4-034-272-11	PLATE, CORRECTION, TLV	
15	* X-4033-930-1	BRACKET (L) ASSY, SP		31	1-452-278-32	MAGNET, PURITY	
				32	1-452-278-22	MAGNET, PURITY	
				33	4-058-025-01	CUSHION (29) BLOTING (KV-J29SN21/SZ2)	

## 7-2. CHASSIS

●: BVTP 3 × 12 7-685-648-79

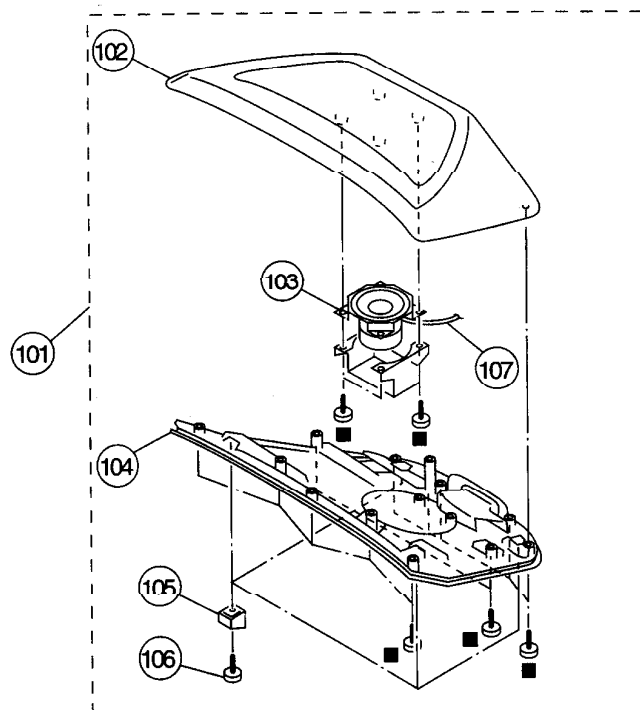


REF. NO.	PART NO.	DESCRIPTION	REMARK
51	* 4-055-140-01	BRACKET, MAIN	
52	* A-1241-286-A	MOUNTED PCB, F1 (KV-J29MF1/MN2)	
	* A-1241-253-A	F1 MOUNTED PCB (KV-J29SN21/SZ2)	
53	* A-1372-324-A	MOUNTED PCB, H3 (KV-J29MF1/MN2)	
	* A-1372-257-A	H3 MOUNTED PCB (KV-J29SN21/SZ2)	
54	1-777-353-11	CABLE, FLAT	
55	* A-1346-601-A	COMPLETE PCB, D (KV-J29MF1)	
	* A-1346-600-A	COMPLETE PCB, D (KV-J29MN2)	
	* A-1346-577-A	D COMPLETE PCB (KV-J29SN21/SZ2)	
56	Δ 1-453-227-21	TRANSFORMER ASSY, FLYBACK (NX-4002/M314)	
57	* 4-056-796-01	HOLDER, FBT (KV-J29MF1/MN2)	
	* 4-055-139-01	HOLDER, FBT (KV-J29SN21/SZ2)	
58	* A-1380-538-A	MOUNTED PCB, K1 (KV-J29MN2)	
	* A-1380-526-A	K1 MOUNTED PCB (KV-J29SN21/SZ2)	
59	* A-1298-060-A	COMPLETE PCB, A (KV-J29MF1)	
	* A-1298-056-A	COMPLETE PCB, A (KV-J29MN2)	
	* A-1298-066-A	COMPLETE PCB, A (KV-J29SN21)	
	* A-1298-045-A	COMPLETE PCB, A (KV-J29SZ2)	
60	8-598-374-00	TUNER (BTV-FG431) (KV-J29MF1)	
	8-598-375-00	TUNER (BTV-FG441) (KV-J29MN2/SN21/SZ2)	

REF. NO.	PART NO.	DESCRIPTION	REMARK
61	* A-1347-118-A	V1 COMPLETE PCB (KV-J29SN21)	
62	* A-1390-716-A	MOUNTED PCB (VAR), S (KV-J29MF1/MN2)	
	* A-1390-618-A	S MOUNTED PCB (VAR) (KV-J29SN21/SZ2)	
63	* A-1298-033-A	COMPLETE PCB, A3 (KV-J29MN2)	
	* A-1297-860-A	A3 COMPLETE PCB (KV-J29SN21/SZ2)	
64	* A-1380-537-A	MOUNTED PCB, K (KV-J29MN2)	
	* A-1380-527-A	K MOUNTED PCB (KV-J29SN21/SZ2)	
65	4-055-143-11	BRACKET, TERMINAL (KV-J29MF1)	
	4-055-143-01	BRACKET, TERMINAL (KV-J29MN2/SN21/SZ2)	
66	Δ 4-022-115-21	HOLDER, AC CORD (KV-J29MF1/MN2)	
	Δ 4-022-115-00	HOLDER, AC CORD (KV-J29SN21/SZ2)	
67	Δ 1-575-023-31	CORD, POWER (WITH CONNECTOR) 6A/250V (KV-J29MF1/MN2)	
	Δ 1-574-338-51	CORD, POWER (WITH CONNECTOR) 7.5A/250V (KV-J29SN21/SZ2)	
68	* 4-056-795-01	HOLDER, ASSY PCB (KV-J29MF1/MN2)	
	* 4-055-142-01	HOLDER, ASSY PCB (KV-J29SN21/SZ2)	
69	* 4-055-447-11	SHEET, INSULATING (KV-J29MF1/MN2)	
	* 4-055-447-01	SHEET, INSULATING (KV-J29SN21/SZ2)	
70	4-046-797-01	SCREW (3X12), (+)BVTP	
71	4-302-428-03	SCREW (WASHER HEAD) (+P 3X12)	

### 7-3. 3D SPEAKER (EXCEPT FOR KV-J29MF1)

■: BVTP 4 × 16 7-685-663-71



REF. NO.	PART NO.	DESCRIPTION	REMARK
101	A-1500-977-A	BOX ASSY (3D), SPEAKER	102-107
102	4-054-496-01	COVER, TOP	
103	1-544-363-11	SPEAKER (10CM)	
104	4-054-497-01	COVER, BOTTOM	
105	4-037-244-01	FOOT	
106	4-302-428-03	SCREW (WASHER HEAD) (+P 3X12)	
107	1-900-224-27	LEAD ASSY, SPEAKER	